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ANALYSIS AND EVALUATION OF PERSONNEL MODELING REQUIREMENTS TO S--ETC(U)
SEP 79 G N BROWN , P J NEILSEN , P W THOMSON DAA639-78-C-0154
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**Analysis and Evaluation of Personnel
Modeling Requirements to Support
Enlisted Personnel Management Functions**

Report of Task 5

Statement of Functional Information Requirements

By:

George N. Brown
Pamela J. Neilsen
Patrick W. Thomson
William O. Turner, Jr.
John W. Wright

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Alexandria, Virginia

Contract No. DAAG39-78-C-0154

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**Report of Task 5,
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(9) Rept. for
29 Sep 78-28
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report defines the requirements for forecasts or projections of Army enlisted personnel information for support of the Enlisted Personnel Management Directorate, MILPERCEN. The report defines information requirements for management and for input to other projection processes. Areas covered are authorizations, inventory, force management, training, accessions, reenlistments, promotions, reclassifications, distribution, interrelationships, rates and adjustments and mobilization.		

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EXECUTIVE SUMMARY

This report responds to the fifth and final task of a General Research Corporation (GRC) contract to study the forecasting aspects of the Enlisted Personnel Management Directorate's (EPMD) requirements for management information. In accordance with the agreed study plan, this report generally follows the format of a functional description but does not prescribe the design of specific ADP system(s).

Following preparation of the study plan (Task 1), the GRC team first documented existing systems and procedures. This information is contained in the report of Tasks 2 and 3. These existing systems consist of some 34 separate and independent systems, models, data bases, and processes, which use different starting positions; move toward differing management goals; and use varying rates, adjustments, and techniques. The comprehensive documentation resulting from Tasks 2 and 3 should be useful to managers in understanding current EPMD operations.

In Task 4 of this study, the GRC team identified several management issues which required resolution. These are discussed in the report of Task 4, and management decisions on these issues are reflected in a letter from EPMD dated 26 March 1979. These EPMD management decisions call for centralization and standardization in key areas of management information where current systems and procedures are fragmented. These decisions and their implementation should achieve improvement in EPMD's management information.

Based on the current systems and procedures and the EPMD management decisions, the study team proceeded with the identification of the requirements for forecasts of information needed by EPMD functional managers. This report defines these information requirements together with identification of necessary input data, sources of inputs, and considerations that must be met by processing systems in order to produce valid forecasts.

As a result of internal coordination within GRC, many of the information requirements identified in this report are reflected in the concept for development of the MOS-level FORECAST system being planned jointly by OASA(M&RA), ODCSPER, and MILPERCEN. Accordingly, this report concentrates on definition of EPMD's requirements for projected information and on considerations which must be satisfied by processing systems, while deferring to the FORECAST project the specification of ADPS design which will produce most of the required information.

The information requirements to support EPMD forecasting have been divided into eleven component areas. Two core areas--Authorizations and Inventory--identify the basic cornerstones upon which virtually all management information is based.

The concept proposed calls for the projection forward in time of these core area data bases which are used to derive management information in the functional areas.

- Authorizations represent the personnel approved to be in Army organizations and certain overhead accounts and must be projected over the same time span and to the same level of detail as the inventory.
- Inventory represents the Army's people resources, beginning with current strength and projected into the future at the level of detail needed to meet EPMD's functional needs.

The Enlisted Master File is the base source for Inventory forecasts. The Personnel Structure and Composition System is the base source for Authorizations forecasts. Forecasts of both Inventory and Authorizations must be consistent with the Active Army Military Manpower Program.

Seven functional areas--Force Management, Training, Accessions, Reenlistments, Promotions, Reclassifications, and Distribution--identify the relevant areas for which EPMD has functional management responsibilities.

Discussions of these areas define the specific information requirements, the inputs required, and the processing needed to generate the required information.

Two special areas--Rates and Adjustments and Mobilization--discuss special concerns which cut across all other areas; specifically, the need for and functions of a Rates and Adjustments proponent, and the impacts of mobilization on the core and functional areas.

Key features of this report include:

- Basic Information Requirements. For each area, the basic information requirements are addressed in terms of that information required for management purposes and that information required for input to other processing procedures.
- Interrelationships. Information and data in the core and functional areas are highly interactive and interrelated. These interrelationships are discussed for each core and functional area, and collectively in the section headed "Interrelationships." These interrelationships drive the form of ADP systems design required to produce valid forecasts.
- Integrated System. Because of the complex relationships, the approach called for by this report is the design of a highly integrated and consolidated core system which will meet most of EPMD requirements, supported by interface modules to meet those requirements not incorporated in the core system. By this procedure, all forecasts will be based on the same starting points, drive toward the same management goals, and use a projection process which incorporates all functional areas and their interrelationships. The concept of the MOS-level FORECAST system describes a core system that will satisfy most of EPMD requirements.

- Mobilization. For each area, the probable impact of mobilization is identified and discussed.
- Desired vs. Expected Data. Functional area discussions address the requirement to produce data representing both the desired program and the most likely or expected program. The comparison of these two programs identifies areas where results are likely to deviate from management goals, thereby highlighting program areas which call for management attention.

Anticipated uses of this report include:

- Providing guidance to the developers of the MOS-level FORECAST system.
- Permitting analysis of EPMD organization.
- Assisting in identification of areas where interim modifications might best be applied.
- Providing a base for analysis of interface module development needed to satisfy those information requirements which are not incorporated in the FORECAST system.

Adoption and implementation of the information requirements, concepts, and procedures presented in this report will provide EPMD with the following improvements over current systems and procedures:

- Unified Approach. Systematic definition of the effects of component areas upon each other will provide functional information which more correctly predicts the combined result of personnel actions.
- Common Base Data. Use by all functional areas of the same representations of future authorizations, inventory, and objective force will cause management efforts to focus toward the same goals.

- Filling Information Voids. Information requirements have been identified which currently are not met, or are met to only a limited extent. Filling these voids should improve EPMD's ability to manage effectively.
- Improved Accuracy. Improved accuracy of individual and collective forecasts should result from proposed procedures.

Experience has shown that the most successful personnel forecasting systems were developed in an atmosphere where the work of the systems developers was totally integrated with the work of the using organizations. In recognition of this condition, system(s) developed to meet EPMD's functional information requirements must involve the directorate's functional action officers/analysts. Provisions for this must be included in development plans.

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FOREWORD

Under Contract DAAG-39-78-C-0154 between General Research Corporation (GRC) and the Department of the Army, 29 September 1978, GRC was required to produce four documents on the subject covered by the contract titled, "Analysis and Evaluation of Personnel Modeling Requirements to Support Enlisted Personnel Management Functions." This report is the last of the four documents. The other three are:

Task 1: Study Plan, No. CR-240, 13 November 1978

Tasks 2 and 3: Prepare Baseline Definition, with Accompanying Flow Diagrams, of the Forecasting Function Within EPMD, No. CR-233, 15 December 1978

Task 4: Preparation of Management Issues, No. 1072-01-79-CR, 15 January 1979

The Enlisted Personnel Management Directorate (EPMD), US Army Military Personnel Center (MILPERCEN), is the proponent agency for the contractual effort.

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Gratitude is also expressed to GRC colleagues who have supplied advice, guidance, information, and encouragement. Heading this list is Mr. Robert Watt, Vice President and Director of the Management Systems Division. His leadership and understanding of the problem, based on his personal involvement with EPMD, have been of tremendous value. The authors thank each of the following members of the GRC technical staff for their invaluable contributions to the project: James Wroth, for his assistance during the critical final phases of the contract; Betty Holz, Project Manager of GRC's MOS-level FORECAST effort, for her assistance and input from this closely related effort; Francis Deppner and Whit Sculley for information concerning SACS and PERSACS; and Irving Heymont and James Loome for information concerning the Reserve and Mobilization.

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SECTION 1

GENERAL

This section explains the purpose of the functional description; provides references applicable to the history and development of the project; and defines terms, abbreviations, and acronyms used in the functional description.

1.1 PURPOSE OF FUNCTIONAL DESCRIPTION

This functional description for the Analysis and Evaluation of Personnel Modeling Requirements to support Enlisted Personnel Management Functions (Contract Number DAAG-39-78-C-0154) is written to:

- Identify and describe the functional requirements for projected information necessary to support enlisted personnel management within EPMD, MILPERCEN. Personnel management functions supported are: force management, training, accessions, reenlistments, promotions, reclassifications, and distribution. The functional requirements described include both current needs (those already recognized and addressed within EPMD) and unmet needs (those recognized but not addressed).
- Identify and describe interactions and data flow among the component areas.
- Provide insight into the impact of mobilization on the forecasting of information needed for enlisted personnel management.

This functional description provides the information requirements needed for each of the functional areas, plus the requirements for four additional areas--Authorizations, Inventory, Rates and Adjustments, and Mobilization--which must be considered to support the functional areas. At first glance, the information requirements presented are similar to the information already used within EPMD. This similarity is appropriate, as the basic information that is required should

remain essentially unchanged as long as the functional area requirements remain unchanged. There are, however, several major differences between the existing and proposed procedures which should be noted as this document is read:

- Desired versus expected comparison. Existing procedures are designed to generate only one set of projections. The information requirements defined in this document state the need for two sets of projections: desired, showing what is needed to reach a prespecified objective; and expected, showing what is anticipated given current policies. A comparison of these two projections will highlight those areas where specific management action is required.
- Interrelationships. Existing procedures generate their information essentially in isolation from each other. GRC personnel conclude that accurate projections for each functional area can only be produced by including the interrelationships among the areas. Each functional area description, therefore, contains a discussion of its relationships with other areas. Additionally, a separate subsection (3.11) is devoted to a discussion of interrelationships.
- Omissions. When reviewing existing procedures, GRC personnel identified several areas which, either totally or in part, were not considered. These areas should be included in any projection process, especially when interrelationships are considered. Examples of these additions include:
 - Reenlistments; in particular, careerists
 - Reclassifications
- Input and processing. For each functional area, a general discussion is provided of the input and processing needed to generate the functional information requirements. The inputs and processing described represent a significant increase in complexity over existing procedures. The

processing required is presented in a generalized, conceptual manner. The precise form that the processing is to take cannot be defined at this time as it will be dependent upon the system(s) to be developed.

- Mobilization. No reference is made to mobilization requirements in any of the existing procedures. Each functional area can expect to be affected in some manner in the event of mobilization. Each functional area description contains a discussion of the probable impacts of mobilization on that area. Additionally, a separate subsection (3.13) is devoted to a general discussion of mobilization.

In the opinion of GRC personnel, the functional information requirements described in this document can only be accurately met by a highly integrated projection system--one which considers each of the functional areas and which provides for the interrelationships among the areas. By direction of the Contracting Officer's Technical Representative (COTR), the definition of a specific system to accomplish the projections is not included in this project, neither has any attempt been made to identify which projection processes or supporting routines should be automated. Accordingly, those parts of a functional description (as defined in DOD Standard 7935.1-S) which are specifically directed toward Automatic Data Processing (ADP) solutions are covered in a more general, non-ADP context.

1.2 PROJECT REFERENCES

1.2.1 Users

The sponsor and primary user of this contract is the Enlisted Personnel Management Directorate (EPMD), US Army Military Personnel Center (MILPERCEN). The functional information requirements identified in this document define those that would need to be met by management information and forecasting system(s) supporting EPMD. It is anticipated that the material contained in this report will be used by

MILPERCEN, contractor, and other agency personnel in the development of the US Army Enlisted Strength and Personnel Management Forecasting System (FORECAST). Accordingly, this document should be considered in conjunction with GRC Report 1075-02-79-CR and GRC Report 1075-03-79-CR which detail the System Specifications and Functional Description for the Military Occupational Specialty Enlisted Strength and Personnel Management Forecasting System (FORECAST).

1.2.2 Scope

The functional descriptions in this report meet the objectives of the work effort as defined by the contract and as clarified by discussions between the COTR and GRC. The scope of the work to be performed and the specific objectives to be achieved are attached as Appendix A.

1.2.3 References

Any attempt to define EPMD forecasting requirements must take into account the many manuals and documents which provide policy, administrative, and technical guidance. An extensive list of pertinent manuals, regulations, and other material can be found in Appendix B. Additional interviews were conducted subsequent to preparation of the Task 2 and 3 Report. The individuals interviewed are listed in Appendix I.

1.2.4 Guidance Memoranda

As work has progressed on this contract, various memoranda have been generated by EPMD and GRC. These memoranda have provided the specific guidance, study boundaries, and research plans used in the execution of this contract. These memoranda are contained in Appendix C.

1.2.5 Earlier Reports

This functional description is the fourth and final document produced as a result of this contract. The three previous documents, prepared under this contract and listed in the Foreword, should be reviewed for a thorough understanding of current EPMD forecasting procedures.

1.3 TERMS, ABBREVIATIONS, AND ACRONYMS

Appendix D contains a list of terms, abbreviations, and acronyms used in this document. Certain generic terms in common use within the Army are defined to have explicit meaning in the context of this report. Readers should familiarize themselves with the definitions found in Appendix D before continuing.

SECTION 2

SYSTEM SUMMARY

The term "system" should be interpreted loosely; a single, coordinated system neither exists currently, nor is being proposed. The "existing system" being summarized is, in reality, a collection of procedures used to meet current demands, while the "proposed system" is the statement of the functional information requirements which must be met to support EPMD management. The following paragraphs describe the background, objectives, existing and proposed methods and procedures, proposed improvements, and impacts. Additionally, some assumptions and constraints are discussed.

2.1 BACKGROUND

Historically, action officers have managed enlisted personnel within the context of a myriad of interacting policies, guidance, and other activities utilizing such future projections of data as were available or they could create. Current computers and mathematical techniques can greatly assist personnel managers by providing inter-related forecasting across functional areas which encompass these diverse relationships. While GRC recognizes that no single individual or agency totally understands all relationships which exist among these functions, the timely and accurate management of the enlisted force requires a future projection system(s) to consider the interrelationships that have been identified.

This functional description identifies and describes the functional management information requirements which an improved projection system(s) must address. Thus, the information contained in this report will have several uses including developing a future system(s), understanding interrelationships of functional information, and addressing organization and management impacts. Anticipated uses of this report are to:

- Provide guidance to developers of FORECAST. Concurrently with this effort, the FORECAST system concept is being developed by ASA(M&RA), ODCSPER, and MILPERCEN. FORECAST is to provide numerical projections at the MOS level of detail of Army enlisted personnel strength and the personnel management actions associated with achieving prescribed strength. The enlisted MOS consisting of 3 characters (MOS-3) identifies the military occupational specialty without regard to level of skill. The exact relationship between FORECAST and EPMD has not been fully determined, as FORECAST is still in the concept development phase. The requirements expressed within this report should provide guidance to assure that EPMD forecasting needs are adequately met by FORECAST.
- Permit analysis of the EPMD organization. The functional requirements in this document have been developed independently of the existing EPMD organization structure. The report can be used to identify areas where organizational realignment may improve enlisted personnel forecasting functions.
- Permit the identification of areas where interim modifications might best be applied. Pending design and development of the FORECAST system, various low-cost, interim modifications could be made to existing methods. The information contained in this report can be used by EPMD personnel to identify those areas where such modifications could be most beneficially applied.
- Permit development of interface modules. EPMD information requirements identified in this report include areas required for EPMD functional management which are peripheral to the currently conceived FORECAST system capabilities. To meet these management needs, information in this report can be used either as the basis for development of modules to interface with FORECAST or as a basis for expanding FORECAST capabilities.

2.2 OBJECTIVE

The objective of this report is the accurate definition of the requirements for projections of management information necessary to support the functions of EPMD. Interfaces and data exchanges necessary to perform coordinated forecasting--both among the EPMD functional areas and with external systems--are identified. This objective needs to be met in such a way as to accommodate EPMD forecasting needs in a mobilization as well as a peacetime environment.

2.3 EXISTING METHODS AND PROCEDURES

The existing methods and procedures have been described in detail in the report of Tasks 2 and 3, Prepare Baseline Definition, with Accompanying Flow Diagrams, of the Forecasting Function Within EPMD, 15 December 1978.

2.3.1 Methodology

In accomplishing Tasks 2 and 3, the GRC team conducted interviews with numerous members of MILPERCEN and of the HQDA staff and reviewed pertinent MILPERCEN and DA references. The interviews and literature search centered on the identification of specific procedures in being or soon to be introduced, of tasking or regulatory requirements, and of the interrelationships among the identified procedures. GRC selected the network technique--with arcs, nodes, and explanatory text--as the method of diagramming the identified procedures.

2.3.2 Results

The Task 2 and 3 Report documents some 34 procedures that are currently being used in MILPERCEN forecasting. ("Procedures" in the context of existing methods and procedures means systems, models, data bases, or processes.) The majority of the documented procedures are categorized into four discussion headings: Force Management, Training Requirements, Distribution, and Force Composition.

- Force Management. The EPMD goal in the area of Force Management is to operate the enlistments, reenlistments, bonuses, reclassifications, promotions, training, and other programs to attain an optimal force. There is not, however, a common objective force used by all proponents for the achievement of this specified goal.
- Training Requirements. The goal in the area of Training Requirements is to provide a properly trained soldier for every authorized space. Individual proponents forecast the training requirement for their specific area of concern (e.g., MOS Training-AIT, SQI, ASI, NCOES, etc.) by using such rates, factors, and forecasting techniques as they deem appropriate. GRC found no consistency in the manner in which these rates, factors, and techniques were developed or applied.
- Distribution. Forecasting in the area of Distribution is an intricate and complex issue. The role of the PBG in the distribution process creates a situation unique to distribution. This unique situation, and the resulting differences in rates and factors, makes any linking of distribution forecasting to other forecasting extremely difficult.
- Force Composition. The area of Force Composition contains discussions of those procedures, Inventory and Authorizations, required to support the other three areas listed above. The discussions of these procedures highlight once again the variety of data bases used with existing EPMD forecasting.

2.3.3 Existing Deficiencies

After assessing the procedures categorized in the report on Tasks 2 and 3, GRC concluded that several deficiencies in the existing methods cause inconsistent and inaccurate enlisted forecasts:

- Lack of a consolidated approach. No single existing system in EPMD encompassed the many procedures discussed.
- Ill-defined contacts among procedures. These contacts were generally tenuous or tangential, providing no means for assessing the impact of a forecast in one area on future forecasts in another area.
- Lack of a common baseline. Non-standardized adjustments to authorization and inventory data among the proponents result in different starting points for each procedure.
- Lack of single objective force. Objective force structures are generated to meet the needs of specific proponents. The resulting objective forces do not meet the same long-range goals.
- Non-standard rates and factors. Individual proponents select or develop rates and factors to fit their particular requirement using personal, "in-house" knowledge. This results in a proliferation of rates and factors with proponents using different rates to represent what should be the same action.
- Non-standard techniques. The actual forecasting techniques used are, again, developed by individual proponents in isolation from each other. This action results in dissimilar forecasting techniques and the omission of interrelationships needed for maximum accuracy.

2.3.4 EPMD Actions

Upon receipt of the Task 2 and 3 Reports, EPMD management review confirmed for GRC that:

- All appropriate systems had been included.
- All interrelationships had been noted.
- The substantive details of each procedure had been included and were correctly stated.

Accordingly, this report has been used as the base for the determination of EPMD's requirements for projections of management information, the sources of data input to these projections, and the interrelationships which must be accommodated in the projection processes.

2.4 PROPOSED METHODS AND PROCEDURES

2.4.1 Management Issues

Following completion of the definition of current systems,¹ the GRC team identified certain management issues, resolution of which was essential to development of the concept for improved information projection procedures. These are discussed in the Task 4 Report² and are summarized here.

2.4.1.1 Problem

Essentially, the problem identified was that no common, systematic forecasting approach exists within EPMD. More specifically, there exists no clear delineation of required forecasting functions and their interrelationships. There is no common initial inventory, nor is there a common goal to be achieved. Different proponents forecast the same functions using different data bases, different procedures, and different rates and adjustments. This non-systematic approach to EPMD forecasting causes personnel management to be less effective than could be accomplished using more standardized forecasting procedures.

2.4.1.2 Integrated Approach Proposed

In Task 4, GRC proposed that the best approach to solving these problems was through more centralized, highly integrated systems and

¹GRC Report CR 233, Analysis and Evaluation of Personnel Modeling Requirements to Support Enlisted Personnel Management Functions, Report of Tasks 2 and 3.

²GRC Report 1072-01-79-CR, subject as above, Report of Task 4.

and procedures. Such integrated systems and procedures would resolve current inconsistencies, improve validity of final products, and eliminate redundancy.

2.4.1.3 Management Decisions

Alternatives were presented to EPMD management which called for decisions in key areas. These areas and decisions of EPMD management¹ are:

- Authorizations Data. Many sources of authorizations data are currently used by EPMD action officers. Much of this data is modified by individual users in different manners. Thus, different management functions are pointed toward different authorizations as their goal.

EPMD's management decision was to consolidate existing data sources and modifications into a single source. This is the approach being pursued in the Authorizations Alignments Office.
- Inventory Data. As with authorizations data, several sources and modification procedures are currently used by different functional areas with EPMD.

EPMD's management decision was to develop a single, EMF-based inventory data source with all required modifications being centrally controlled.
- Objective Force. Three different objective forces are currently in use.

EPMD's management decision was to consolidate all objective force requirements and generate a single objective force which meets the requirements of all functional areas.

¹LTR, Chief, Automation Management Office, EPMD, MILPERCEN, Subject: Evaluation of Task 4 (Preparation of Management Issues), dated 26 March 1979.

- Rates and Adjustments. Again, the problem is lack of commonality and failure to use the best available data. EPMD's management decision was to use a single point for generation of rates, allowing proponents to override only specified rates. EPMD also recognized the need for consistency in the application of adjustments.

The GRC approach to defining information requirements and forecasting procedures has been guided by the above decisions.

2.4.2 Concept

The proposed methods and procedures described in Section 3 of this report will provide EPMD with a unified approach to meeting its responsibilities for information forecasting. These methods and procedures require that forecasts in the several functional areas use common data bases and rely on improved data interaction among functional areas. In this manner, utilization of consistent projected data can be reasonably certain.

The cornerstone of the concept proposed involves the projection forward in time of two data bases, inventory and authorizations, which are used for the derivation of most functional management information:

- Inventory. Inventory represents the Army's people resources, beginning with current strength and projected into the future.
- Authorizations. Authorizations represent the personnel approved to be in Army organizations and certain overhead accounts as modified to conform to external constraints. These must be projected over the same time span as the inventory and provide the level of detail required by the functional areas.

The Enlisted Master File (EMF) is the base source for inventory forecasts. The Personnel Structure and Composition System (PERSACS) is the base source for authorization forecasts.

2.4.3 Summary of Improvements

The improvements anticipated with the proposed methods and procedures are primarily qualitative--better forecasts, based on common data, to provide management with more valid information for use in managing the enlisted force.

- Unified approach. Systematic definition of the effects of component areas upon each other will provide functional information which more correctly predicts the combined result of personnel actions.
- Common data bases. Used by all functional areas for like projections of future authorizations, inventory, and objective force data to assure that management's efforts are focused on the same goals.
- Filling information voids. Information requirements have been identified which are not currently met, or are met to only a limited extent. Filling these voids should improve EPMD's ability to manage effectively.
- Improved accuracy. Improved accuracy of individual and collective forecasts should result from proposed procedures. The accuracy achieved in data projection involves consideration of technical possibilities and trade-offs between accuracy and cost (including system complexity). By use of procedures which constrain detailed forecasts to agree with aggregate forecasts contained in the AAMMP, overall accuracies will correspond to those attained by the ELIM-COMPLIP system and shown in Table 2.4.1. Accuracy of detailed data within these aggregations can be expected to be less than that of the aggregation and should be defined through experimentation and negotiation between EPMD functional managers and personnel designing the specific projection system(s).

TABLE 2.4.1

ELIM-COMPLIP FORECAST ERRORS

Forecasts of Enlisted Strength and Losses for March 1978 to January 1979
Using Data Base as of February 1978

Category	First Term RA		Career RA		Total*	
	x1000	%	x1000	%	x1000	%
Strength	1.553	0.46	-1.003	-0.32	.533	0.08
Trainee discharge program	.214	2.70	-.009	-9.78	.205	2.56
Expeditious discharge program	-.325	-3.03	-.325	-55.08	-.650	-5.74
Other adverse	1.070	10.58	-.128	-3.01	.942	6.56
Dropped from rolls	-.770	-10.24	-.319	-14.40	-1.092	-11.21
Physical disqualification	.332	7.69	-.116	-23.29	.216	4.48
Other	-.123	-1.25	-.641	-8.79	-.764	-4.45
Research	.828	57.34	.472	27.95	1.300	41.49
Nondisability retirement			-1.006	-13.02	-1.006	-13.02
ETS	-3.595	-8.34	2.645	9.08	-.940	-1.30
Immediate reenlistment	-.403	-1.99	-.015	-0.03	-.418	-0.61
Total loss	-2.777	-2.40	.555	0.54	-2.209	-1.02

* Includes AUS.

2.4.4 Summary of Impacts

The forecasting processes described in Section 3 are not intended to be an Automated Data System (ADS); instead, they are meant to provide the information requirements upon which an ADS can be defined and developed. Therefore, any discussion of impacts can only conceptualize possible impacts, should a system be developed.

2.4.4.1 Equipment Impacts

GRC assumes that any future system(s) would be developed using existing computer equipment--PERSINSD and/or USAMSSA--to minimize costs.

Equipment costs and impacts will still be incurred, including:

- Any new equipment requirements would probably be related to the need for terminals and data lines to provide interactive system use by EPMD personnel.
- The impact on overall processing capabilities at the supporting site cannot be assessed at this time. This would depend not only on the size and complexity of the system(s) to be developed, but also on resolving such critical considerations as scheduling and priorities by the supporting site.

2.4.4.2 Software Impacts

If automated system(s) are developed, it can be assumed that this will involve substantial costs for software design, development, testing, and maintenance. Some existing software may be adaptable to these requirements, e.g., software required to manage the data bases.

Additionally, if automated linkages are established between existing systems and the proposed forecasting system(s), there may be related software impacts on the following systems:

- | | |
|----------------|------------|
| • ELIM-COMPLIP | • CAP III |
| • REQUEST | • PERDDIMS |
| • RETAIN | • PERSACS |
| • ARPRINT | |

2.4.4.3 Organizational Impacts

The proposed methods and procedures will have organizational impacts irrespective of whether the procedures are manual or automated. A key element in the success of the proposed methods and procedures is the establishment of clear responsibilities for each of the areas described, not only the existing functional areas, but also the areas of Inventory, Authorizations, and Rates and Adjustments. Establishing these proponencies may involve the creation of agencies which have not previously existed, as well as the transfer of certain procedures from existing to new proponencies.

2.4.4.4 Operational Impacts

Implementation of the proposed methods and procedures will impact on EPMD operations in the following ways:

- Require use by functional areas of information they did not themselves develop.
- Require more effective flow or communication of data among functional areas.
- Place increased importance on the accuracy and validity of inventory and authorizations projections.

Automation of key portions of the projection process, as envisioned in the FORECAST project, will assist in achieving more effective data flow among the functional area.

2.4.4.5 Developmental Impacts

Developmental impacts highlight the need for close involvement by EPMD functional managers in the design of the automated system(s) to satisfy the identified information requirements. Especially important is the impact of the development of the FORECAST system and the absolute requirement for EPMD involvement in its design. As the specifics of FORECAST are determined, decisions can be made concerning the development of interface modules which will work in conjunction with FORECAST to meet those EPMD requirements not met by FORECAST.

2.4.5 Assumptions and Constraints

The following assumptions and constraints guided the development of proposed methods and procedures:

- Active Army Military Manpower Program. The AAMMP, developed using the ELIM-COMPLIP system, will continue to be the master manpower control for programming and budgeting purposes. Personnel management data within EPMD must correlate with this control.
- The FORECAST system. The MOS-level FORECAST system will be developed. In this connection:
 - EPMD will actively participate in the design of this system.
 - Three or more years will be required before FORECAST becomes fully operational.

GRC further assumes that FORECAST will, at a minimum, contain the capabilities as described in GRC Reports 1075-02-79-CR (System Specifications for the Military Occupational Specialty Enlisted Strength and Personnel Management Forecasting System) and 1075-03-79-CR (Functional Description for the Military Occupational Specialty Enlisted Strength and Personnel Management Forecasting System). It is recognized that subsequent decisions may, in fact, result in specifications different from those in the GRC documents. However, it is assumed that the system which is eventually specified and developed will meet functional requirements and contain capabilities similar to those described in the documents referenced.

- Duplicate Systems. Duplicate systems will not be developed by EPMD to generate projections that are available from other systems.
- Mobilization. This study addresses the impact on EPMD information projection of the post-mobilization environment. Mobilization planning and the transition from peacetime to mobilized state are specifically excluded.

SECTION 3
DETAILED CHARACTERISTICS

3.1 INTRODUCTION

3.1.1 General

Section 3 contains the EPMD functional information requirements for projected information that have been identified by GRC. As indicated in Section 1, the purpose of this document is to define the information requirements and general methodology to satisfy these requirements, not to provide the detailed design of an ADP system. It is anticipated that these requirements will be used by the developers of the FORECAST system to assure that EPMD requirements will be addressed by that system wherever possible. EPMD information requirements can be separated into two categories:

- Projected information required by EPMD to manage the enlisted force
- Projected information required as inputs to other projection processes

3.1.1.1 Component Areas

For ease of understanding, and to recognize that there must be a realistic and workable delineation of responsibilities for managing EPMD activities, the functional information requirements are categorized and discussed by component areas. The first two, Authorizations and Inventory, establish the base or core for most EPMD management actions. They will be referred to as Core Areas. The next seven correspond to personnel management functions within EPMD and are called Functional Areas. These are:

- | | |
|--------------------|---------------------|
| • Force Management | • Promotions |
| • Training | • Reclassifications |
| • Accessions | • Distribution |
| • Reenlistments | |

The final two areas, Rates and Adjustments and Mobilization, are called Special Areas, in that they cut across all component areas. Figure 3.1.1 portrays conceptually these component areas.

3.1.1.2 Functional Compartmentalization

A current deficiency, identified during Tasks 2 and 3 of the GRC effort, is the functional compartmentalization of projected information. Some functional management areas are independently creating redundant projections, using no common baseline and dissimilar projection methodologies. Often the complex interrelationships among functional areas are ignored; yet, these interrelationships are mandatory for valid projections. Section 3.11, Interrelationships, addresses this problem and provides a framework for tying together various processing modules and information from functional areas to achieve valid projections.

3.1.2 Overview

3.1.2.1 Authorizations

Projected authorizations information constitutes a prime input to all information projection processes. One of the problems currently faced by EPMD managers is lack of a common, valid authorizations base in the level of detail and over the time span required for management purposes.

3.1.2.2 Inventory

Inventory projections impact all management functions and are impacted by all management functions within EPMD. The processes by which inventory projections should be made are complex and interactive among the functional areas. However, conceptually, these processes may be viewed as starting with the current personnel inventory, simulating those actions which will occur over time, comparing the result with the desired result, and then adjusting changes over the time period to optimize the match between expected and desired results.

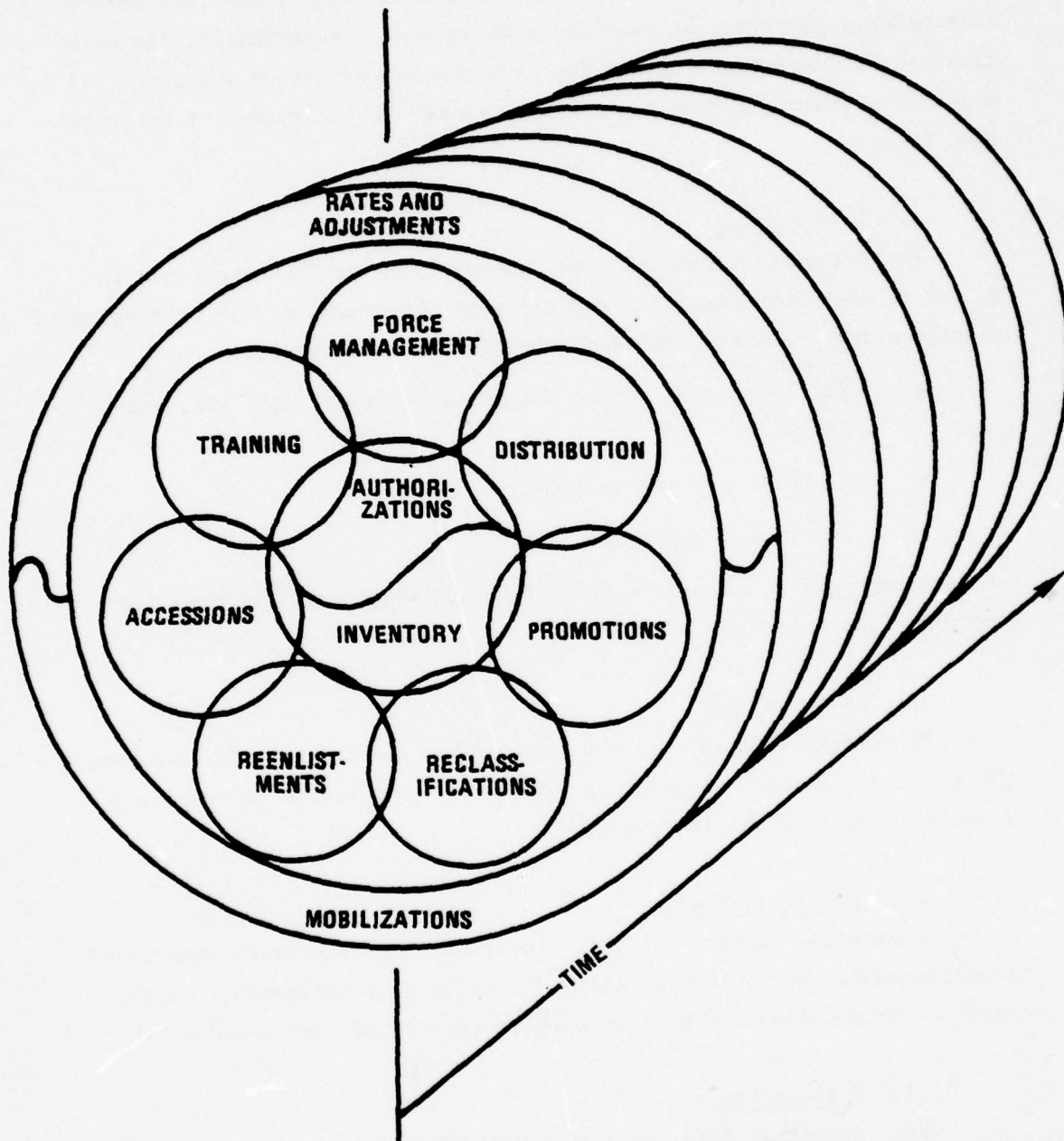


Figure 3.1.1. Component Areas of EPMD Information Requirements

3.1.2.3 Force Management

The Force Management functional area deals with those information requirements generated by year-group management; specifically, the determination of over/short figures for each MOS by year group and grade. A major requirement in this functional area is the generation of the objective force.

3.1.2.4 Training

The Training functional area addresses the trained personnel required to meet authorizations and the plan for training that is programmed to take place. Training is identified in three categories:

- Skill Training (Entry and Advanced Level, SQI, ASI, and LIC)
- Leadership Training (NCOES)
- Functional Training

Primary emphasis is placed on Skill Training since this presents the major management challenge to EPMD.

3.1.2.5 Accessions

This section deals with the information requirements for managing the prior-service and no-prior-service accessions needed to sustain a trained force at authorized levels.

3.1.2.6 Reenlistments

Information required in this functional area addresses numbers of reenlistments, appropriately detailed, including reenlistments which require reclassification with or without retraining into another MOS.

3.1.2.7 Promotions

This functional area requires information that incorporates MOS feeder patterns and anticipated promotions to match the enlisted force to the authorized grade structure.

3.1.2.8 Reclassifications

The Reclassifications functional area needs information to identify and manage those reclassifications not associated with reenlistments or promotions.

3.1.2.9 Distribution

The Distribution functional area requires projected authorizations and inventory information to put the right number of people in the commands where they are needed based on authorizations.

3.1.2.10 Rates and Adjustments

This special area will be discussed in terms of the need to have valid and consistent rates and factors to achieve valid and consistent projections. The concept of a single proponent being charged with development of rates and factors will be described. Adjustments must also be handled so as to assure commonality and consistency.

3.1.2.11 Mobilization

The special area of Mobilization addresses the issues, policies, and ranges of options arising during mobilization which impact on EPMD information projection requirements and processes. Specific mobilization impacts will be covered in each of the core, functional, and special area discussions.

3.1.3 Other Considerations

Other considerations which influence the forecasting of management information for EPMD include the MOS management concept used, the impact of program/budget decisions on personnel management, and the degree to which specific processing techniques can be defined separate from the design of an integrated system to accomplish projections of the personnel inventory. These topics are discussed in the following paragraphs, prior to commencing treatment of the component areas themselves.

3.1.3.1 MOS Management Concept

GRC's analysis of EPMD information forecasting needs is based on the concept that the goal in all functional areas is to match primary

MOS with explicit targets. This concept is not intended to ignore the usefulness of duty MOS, secondary MOS, and additional MOS in the operational problem of matching a specific soldier against a specific requirement. Rather, it is based on the belief that the ultimate objective of personnel management is to have each soldier serving in his or her primary MOS in a position calling for that MOS.

Promotion MOS, on the other hand, is a factor which influences the projection of inventory by defining MOS changes as grade changes occur. MOS changes associated with the promotion process will be discussed in Section 3.8.

3.1.3.2 Program/Budget Decisions and EPMD Forecasting

Budget decisions and the resulting approved and funded programs constrain most forecasting processes used by EPMD. These approved and funded programs are contained in the budget and supporting documents (for the current and budget years) and the Program Decision Memoranda (for the outyears). Some of the specific constraints on EPMD forecasts which stem from the program/budget decision process include:

- Overall strength and manyears
- Strength by command
- Enlisted grade structure
- Promotions
- Accessions
- Reenlistments
- Monetary incentives
- PCS moves
- Training

The concept proposed for EPMD forecasting (Section 2.4.2) calls for projections of authorizations and inventory data to be consistent in the aggregate with the Active Army Military Manpower Program (AAMMP). By this process, many of the budgetary controls will automatically constrain the functional area forecasts used by EPMD. Additional budgetary constraints are input, either directly or indirectly, as discussed in the component area sections. Specifically:

Budgetary constraints on Authorizations

- From the AAMMP: Total strength, TTHS, and operating strength (Structure Spaces) by month
- From other inputs: Enlisted grade structure and strength by command

Budgetary constraints on Inventory

- From the AAMMP: Total strength, average strength (man-years), accessions, and reenlistments
- From other inputs: Promotions, monetary incentives, strength by command, and training base constraints

Budgetary constraints on PCS moves impact on operation in the Distribution functional area. The operational aspects of the Distribution functional area are not considered a part of the forecasting problem that this contract seeks to address; therefore, the PCS move budget and its influence on selection of the specific individual to fill a given requirement are not addressed. However, it is acknowledged that unduly tight constraints on PCS moves over a period of time could indirectly influence the projection of inventory at the command level of detail.

3.1.3.3 Processing Concepts

Discussions of each of the two core areas, the seven functional areas, and the two special areas describe processing in conceptual terms. More specific description of processing algorithms is so closely intertwined with the design of a central, integrated ADP system to accomplish the desired processing that it is not feasible to specify them apart from the detailed system design. In this regard, reference is made to the processing descriptions contained in Section 4.4 of the GRC System Specifications for the MOS-Level Forecasting System. Based on the stated assumption that the FORECAST system will be developed and will be required to meet major portions of the EPMD forecasting requirements, the specific processing procedures for automation of EPMD core and functional areas is best left to that system specification.

The processing discussions contained in this document are intended to serve two purposes: first, to assist EPMD managers in understanding the interrelationships and considerations inherent in producing accurate and consistent forecasts; second, to document processing considerations for use during the detailed development of the FORECAST system. It would be misleading and counterproductive to indicate specific processing routines for EPMD functional and core areas; satisfactory forecasts can be produced only through an integrated processing system.

3.2 AUTHORIZATIONS

3.2.1 General

The Authorizations core area provides EPMD with a common set of defined manpower requirements, projected over time, needed to forecast enlisted personnel management actions. These data must be consistent with external management constraints such as the AAMMP and budgeted or OSD-approved grade structure. The fundamental process used in deriving management information compares a projected inventory against a goal to determine what actions are needed to meet the goal. Authorizations describe a goal as spaces that have been recognized as being required by the Army to accomplish its mission. Authorizations are used in the planning, programming, and controlling phases of the management process. They are essential to budgeting, and they serve as the baseline to support forecasting of enlisted personnel functions.

Currently within EPMD the following deficiencies have been identified:

- There is no single authorizations goal to be achieved.
- There is no common source providing authorizations data.
- Valid authorization data are not available throughout the time span that represents the EPMD planning horizon.

This management issue was surfaced in the Task 4 report of this contract; and as a result, EPMD has decided to consolidate existing authorizations data into a single source, thereby providing a common set of data for the several personnel management functions.

3.2.2 Functional Information Requirements

This area has but one functional information requirement: to generate an accurate and timely authorizations data base for use by the other functional areas as management goals. Authorizations data serve as the "driver" in forecasting functional requirements. The decision to use a single data base places the varying functional requirements

served by several existing data sets on this single authorizations data base. As such, these authorizations must provide the number of manpower spaces for each of the population categories for which the forecasts are being made.

Detail and Timing. The authorizations data requirements by functional area are outlined in Table 3.2.1. The level of detail and the timing requirements are included for each of the areas using authorizations in its forecasts. Any function requiring a lesser degree of detail can generate its authorizations data by aggregating the information in the data base. Authorizations must be projected at least 4 years into the future with provisions for quarterly projections for all years and monthly projections for the first 2 years. The data base must be updated monthly.

Format. Formats for authorizations data output will vary by the requirements of the function being forecast. Formulation of the output should accommodate the detailed needs of the requirements prescribed in Table 3.2.1.

3.2.3 Relationships

Figure 3.2.1 shows the relationships among the Authorizations core area and functional areas. Authorizations are related to:

- Inventory, which uses authorizations data to determine objectives used to develop desired programs.
- Force Management, which builds the objective force.
- Training, which determines the requirements by comparing authorizations to inventory data.
- Reenlistments, which uses authorizations as just one of the inputs to determine reenlistment goals.
- Promotions, to assure that the requirements for promotion do not exceed approved grade structures of the enlisted force.

TABLE 3.2.1
AUTHORIZATIONS REQUIREMENTS

<u>Functional Area</u>	<u>Detail</u>	<u>Projection Points</u>
Inventory	MOS-3 ASI SQI LIC Grade Sex Command	Monthly projections for current and budget FYs; quarterly projections for 2 planning years.
Force Management	MOS-3 Grade Sex	Quarterly, end-year projections for current plus 3 FYs.
Training:		
Entry Level	MOS-3 Sex	End-year projections for current plus 3 FYs.
Advanced Level	MOS-3 Grade Sex	
ASI	MOS-3 ASI	
SQI	MOS-3 SQI	
LIC	MOS-3 LIC UIC	End-year projections for current plus 2 FYs.
NCOES	No input	
Functional	No input	
Reenlistments	MOS-3 Grade Sex	Quarterly; monthly projections for current and budget FY, quarterly projections for 2 planning FYs.
Promotions	MOS-3 Grade Sex	Monthly projections for current and budget FYs; quarterly projections for 2 planning years.
Reclassifications	MOS-3 Grade Sex	Monthly projections for current and budget FYs; quarterly projections for 2 planning years.
Distribution	MOS-3 Grade Command	Monthly projections for 12 future months; quarterly for 3 years.

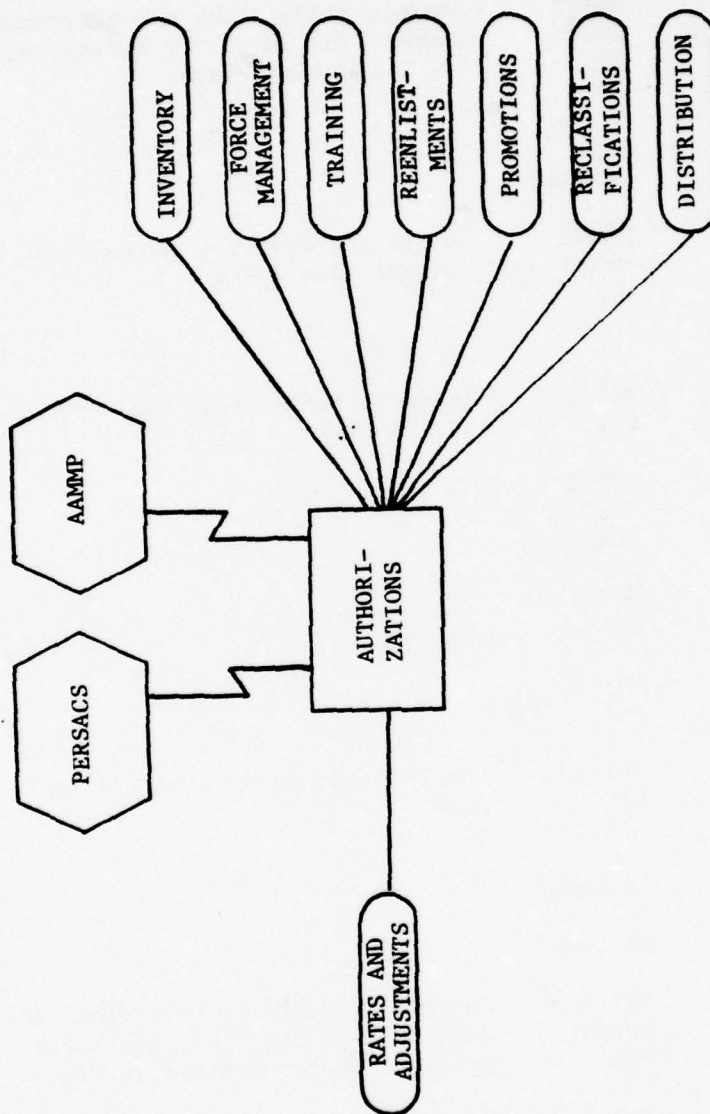


Figure 3.2.1. Authorizations Relationships

- Reclassifications, which uses authorizations data to determine whether reclassifications can be made to and from the MOSs.
- Distribution, which uses authorizations data to determine the personnel requirements by command, geographical area, installation, and unit of assignment.

3.2.4 Input and Processing

Figure 3.2.2 depicts the processing flow of authorizations data. This area is unique in that the primary input, PERSACS, is already a statement of authorizations. The processing refines the PERSACS information into a data base that is usable for all of the functional areas with authorizations requirements. Using PERSACS as the official Army authorizations, this input is processed with adjustments provided from other input sources.

3.2.4.1 Input

PERSACS. This system provides the detailed manpower data for the structure spaces. PERSACS consists of two files, a unit file with format shown in Table 3.2.2 and a detail file with the format shown in Table 3.2.3. Normally, the operating strength represents approximately 88 percent of the total end strength.

TTHS. Trainees, transients, holdees, and students (TTHS) constitute the overhead accounts. Not all of the forecasts will include all of the overhead strength; there will be times when the trainee account, for example, will be intentionally excluded. The overhead accounts represent about 12 percent of the end strength. The TTHS Forecasting System is an attempt to forecast the overhead and should be considered for input to the data base. However, this system does not forecast to the MOS level of detail. Additional processing will be required to disaggregate it for inclusion in projected authorizations.

Structure changes. These changes are input to the extent they have not been included in PERSACS. They are changes that are planned

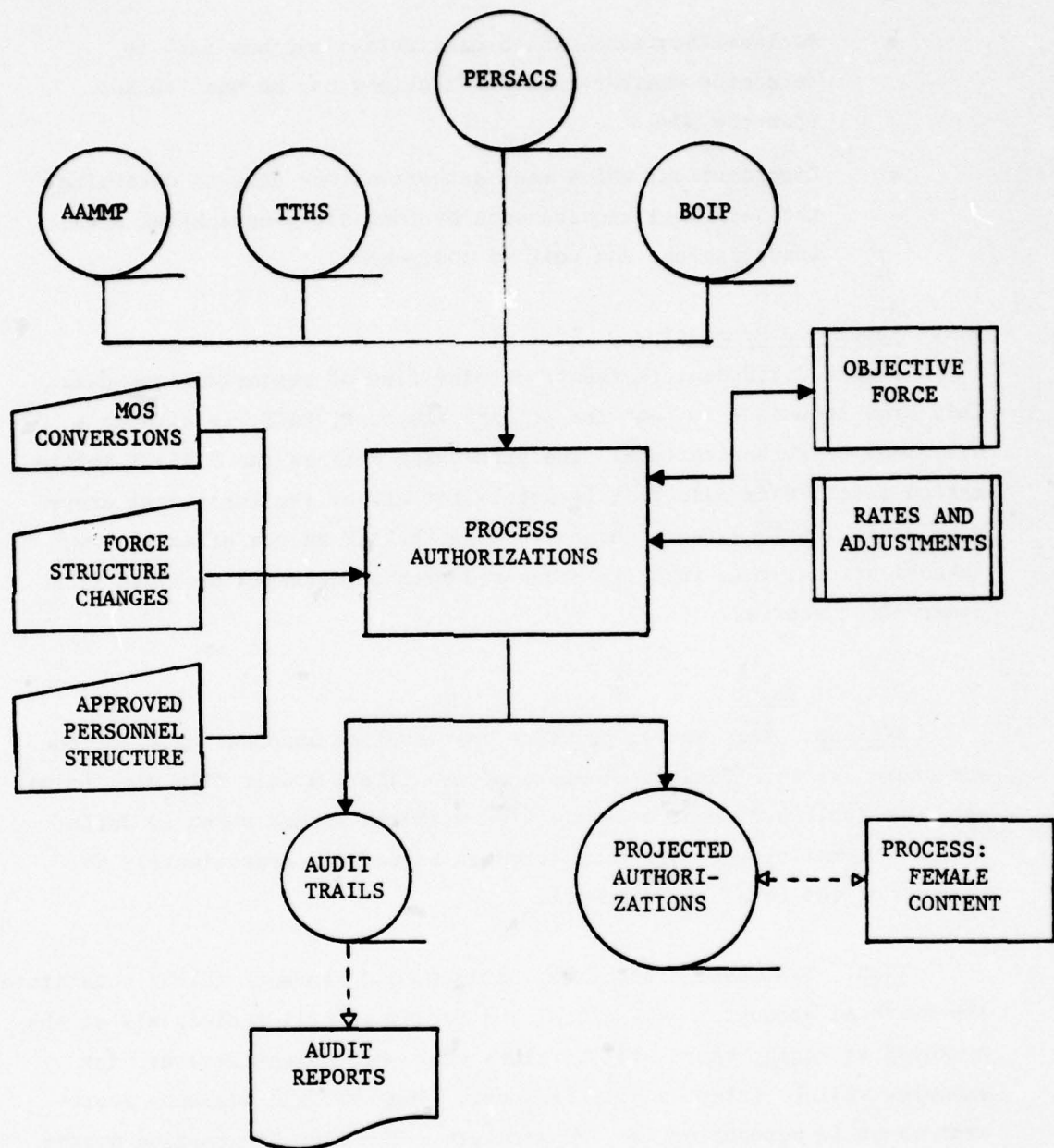


Figure 3.2.2. Authorizations Input and Processing

TABLE 3.2.2
FORMAT OF SACS UNIT FILE

<u>Code</u>	<u>Name</u>	<u>Number of Characters</u>	<u>Position in Record</u>
ACTCO	Action Code	1	153
ADCON	Administrative Control	6	52-57
AGR	Aggregate	3	109-111
ASGMT	Command Assignment Code	2	143,144
BRNCH	Branch of Service Codes Unit	2	29,30
CARSS	Combat Arms Regimental System	2	27,28
CCNUM	Command Control Number	6	177-182
CIV	Civilian	3	112-114
COMPO	Component Code	1	3
DEPLO	Deployment Location Code	3	80-82
DESTS	Deployment Strengths	1	60
DPMNT	Deployment Area and Month	4	61-64
EDATE	Effective Date	6	10-15
ELSEQ	Element Sequence Number	2	150-151
ENL	Enlisted	3	106-108
EQCON (ERCOD)	Equipment Readiness Condition	1	187
ESCON	Equipment Serviceability Condition Code	1	186
FICOD	Force Identification Code	1	2
LEVEL	Level	1	199
LOCCO	Location Code	3	174-176
MBCMD	Mobilization Command	2	92-93
MBLOC	Mobilization Location Code	3	94-96
MBPRD	Mobilization Period	3	65-67
MBSTA	Mobilization Station	9	83-91
NTOID	Note Identification	1	129
OFF	Officer	3	97-99
OPDAT	Operational Data	1	130
OPSTR	Operating Strength	18	97-114
PARA	Paragraph	1	200
PHASE	Phase Code	1	152
PRCON	Personnel Readiness Condition	1	185
RECDEL	Record Delete Byte	1	1
SPLIT	Split Unit Indicator	1	22
SRCTO	Standard Requirements Code	11	190-200
STACO	Station Code	5	156-160
STATS	Unit Status Code	2	154,155
STNNM	Station Name	9	161-169
TMCCC	Type MTOE Indicator	1	183
TPSNA	Troop Program Sequence Number	5	145-149
TRCON	Training Readiness Condition	1	188
TYPKO	Type Code	1	58
UICCC	Unit Identification Code	6	4-9
UNCAP	Unit Capability	1	184
UNCON	Unit Readiness Condition	1	189
UNMBR	Unit Number	4	23-26
UNITDS	Unit Description	21	31-51
WOF	Warrant Officer	3	103-105

TABLE 3.2.3
FORMAT OF PERSACS DETAIL FILE

<u>Code</u>	<u>Name</u>	<u>Number of Characters</u>	<u>Position in Record</u>
AFSTR	After Factored Strength	6	64-69
AMSCO	Army Management Structure Code	11	29-39
ASI	Additional Skill Indicator	2	41,42
AUSTR	Authorized Strength	5	54-58
BFSTR	Before Factored Strength	5	59-63
BRCHP	Branch Personnel	2	27,28
COMPO	Component Code	1	72
EDATE	Effective Date	6	7-12
GRADE	Grade or Position	2	20,21
IDENT	Identity	1	40
LIC	Language Identification Code	2	43,44
MGCMD	Major Command	2	70,71
MOS	Military Occupational Specialty	5	22-26
PERMK	Personnel Remark (Standard)	8	41-48
RCNUM	Record Control Number	1	19
RQSTR	Required Strength (Personnel)	5	49-53
SORCE	Source of Data	4	73-76
TDATE	Termination Date	6	13-18
UICCC	Unit Identification Code	6	1-6

or approved but not yet systematized in the official authorizations. For example, specified units may be added to or deleted from the force.

BOIP and Equipment Modernization Schedules. Equipment and weapon system modernization changes the composition of the units and requires adjustment to the authorizations data base. Basis of Issue Plans (BOIP) and equipment introduction schedules provide portions of this input.

Approved Personnel Structure. These data provide the most recently approved and funded personnel structure as defined by the Program Decision Memorandum (PDM) and the budget. These data provide the required constraints for command-strength levels and grade structures.

Active Army Military Manpower Program (AAMMP). This input provides the total-Army limits for total strength, TTHS, and operating strength.

Objective Force. The management policies utilized in the generation of the objective force, as described in Section 3.4, are used to constrain the PERSACS authorizations at the MOS level of detail.

MOS Conversions. Projected changes to the classification system are input to the authorizations data base to convert the spaces. The conversions can be either direct, where an MOS is converted to a new or existing MOS on a one-for-one basis, or indirect, where the conversions are made in ratios other than one-for-one and estimates of the conversions may be required. (Reference Figure 3.3.4 in Section 3.3, Inventory, for an example of conversion guidance.) The source for conversion guidance is the DA 611-Series Circulars.

Table 3.2.4 provides a summary of input requirements for the Authorizations core area.

3.2.4.2 Processing

The processing is initiated by adding the overhead strength (TTHS accounts) and operating strength deviation to the PERSACS authorizations. If the TTHS Forecasting System is used for this strength, processing is

TABLE 3.2.4
AUTHORIZATIONS--SUMMARY OF INPUT

<u>Input</u>	<u>Source</u>	<u>Detail</u>	<u>Comments</u>
Structure Spaces	PERSACS	MOS-3 ASI SQI LIC Grade Sex Command	
Overhead Strength	TTHS Fore- casting System	By Account	These accounts are not to the MOS level of detail. Processing is required to disaggregate them to de- sired detail.
AAMMP	Total Strength Structure Spaces	Total enlisted THS Trainees	
Structure Changes	Planned or approved changes not yet included in PERSACS	MOS-3 Grade Sex Command EDATE TDATE	
Equipment Changes	BOIP and Equipment Modernization Schedules	MOS-3 Grade Command EDATE TDATE	
Approved Personnel Structure	PDM, Budget, Top six, Top five	MOS-3 Grade CMD	
Objective Force	EPMS, EFMP, SGA	MOS-3 Grade	
MOS Conversions	DA-611 Series Circulars	MOS-3 Grade	

required to disaggregate the data to the MOS level of detail. Care should be taken to maintain the integrity of these accounts in order to include or exclude them depending on the requirements of the functions being forecast.

Adjustments should be made for all actual and projected changes in the processing of the data base to assure its currency. Units which are added to or deleted from the force structure are changed based on effective dates and termination dates (EDATES and TDATES). Other actual and projected changes, e.g., changes in the composition of a unit, will also be incorporated in the processing.

The authorizations should be aligned with the Approved Personnel Structure and Program and Budget Guidance. Adjustments are made to the total-Army strength as well as individual commands and personnel structures. Factoring and/or optimization can be employed to either increase or decrease the authorizations. Appendix F provides descriptions of both the current and proposed factoring procedures which can be used in this process. Other factoring methods might also be considered.

Grade limitations are provided in the Approved Personnel Structure input. These limitations must be used to adjust the authorizations by grade to the MOS level of detail. The disaggregation of these grade limitations by MOS is accomplished in coordination with the development of the MOS-level-of-detail objective force. The resulting authorizations data will provide information to support the functional forecasts, e.g., promotions with objectives that do not exceed grade constraints.

Authorizations processing requires the generation of audit trails; as adjustments are made to the data base, they are identified and saved for later reference. Retrieval of the adjustments, either in the form of detailed listings of the changes or some other form of retrieval, is essential to management review and verification of projected authorizations. The saved adjustments can be compared with an updated authorizations data base to determine whether the changes have been "systematized" officially.

3.2.5 Mobilization Considerations

In a mobilization environment, the primary purpose of the Authorizations core area remains the same: to serve as a common baseline to all personnel functions having requirements driven by personnel spaces. The detail needed is a factor of the uses to be made in each functional area.

Upon mobilization, the Reserve and National Guard become part of the active force with EPMD having a role in the activated Reserves personnel management. In a post-mobilization environment, EPMD must, therefore, include these units in the projected authorizations; and it is important that these authorizations remain distinctly identifiable as a separate cohort group to accommodate differences in the management uses of forecasts.

The SACS file, of which PERSACS is an extract, has data on all master force units including active, Reserve, National Guard, and unmanned units for General Mobilization. The term, General Mobilization, used by ODCSOPS includes all units included in partial and full mobilization but does not include a planned force for total mobilization. The latter, in particular, would be tailored to the situation. Information on the SACS file is available to personnel planners when needed and at the level of detail deemed necessary by users.

Mobilization Impacts. The specific impacts on inputs to the authorizations base data are:

- PERSACS. Increased volume and need to identify cohort groups separately.
- Individual accounts. The manpower spaces for overhead strength will change to some extent. Wounded-in-Action (WIA) rates will influence the holdee account. A significant portion of the transfers may be accomplished by unit moves, thereby tending to reduce the transient account.

- Actual and projected structure changes. These changes will continue to be made.
- Budget guidance. Budget guidance would likely be of less concern as the size of the mobilized force increases.
- MOS Conversions. These changes may or may not continue to be made.
- Grade considerations. These would likely be of less concern as the size of the mobilized force increases.
- Female content. The male/female mix will continue as a requirement to satisfy the requirements by gender needed in some of the functional area forecasts.

Processing. Some steps in processing will be eliminated in response to the removal of constraints on authorizations and the time available to incorporate structural changes. The capability for user intervention must always remain available to make the authorization processing more responsive in a mobilization environment.

Summary. The processes to manage the authorizations data base will not change radically during partial mobilization. Under full mobilization, several constraining factors will undoubtedly be relaxed in response to the need for shorter ADP run time and faster user responses. The output, however, remains the authorizations data base necessary to provide the number of manpower spaces for each population category for which forecasts are being made.

3.2.6 Other Issues

Some forecasting functions, e.g., training and accessions, have requirements to state the male/female content of their projected requirements. PERSACS data identify the authorizations by designations of male only, female only, and interchangeable positions. These designations are not suitable for use in all EPMD projections. Some processing must be developed to calculate definite objectives for women. This core area is considered the logical place to provide the

female objectives. Detailed objectives for women by MOS and grade must be developed. The intent is not to change the spaces that are interchangeable in the authorizations data base; rather, this process is to identify specific objectives for females to be used in the forecasting process.

The processing described in this core area should provide the most accurate authorization data available and will serve the best interests of EPMD functional area forecasting requirements.

3.3 INVENTORY

3.3.1 General

The Inventory core area provides EPMD personnel with detailed strength data, both current and projected, necessary to perform personnel management functions. The interactive effect of the seven functional areas discussed in Sections 3.4 through 3.10 causes the generation of management information for these areas to be inherent in the process of projecting the inventory. Additionally, current and projected inventory, compared with current and projected authorizations, fulfills a major information requirement for general management purposes within and outside of EPMD.

3.3.2 Functional Information Requirements

3.3.2.1 Management Uses

Projected inventory compared to projected authorizations is required by directorate-level management. This information reflects the effectiveness with which the individual personnel management functions are combining to achieve directorate-level goals. This information should:

- Be detailed by command, grade, MOS-3, ASI, and SQI.
- Be updated monthly.
- Show projections by month for the current and budget year, and by quarter for 2 additional planning years.
- Be available to EPMD functional managers to help monitor their areas.

Figure 3.3.1 provides sample formats by which these data might be presented.

Exception reports should be produced by the Inventory core area which would:

PROJECTED STRENGTHS
MOS-3

<u>COMMAND</u>	<u>GRADE</u>		<u>CURR</u>	<u>+1</u>	<u>+2</u>	<u>+3</u>	...
Command	E1-E3	AUTH	↓	↓	↓	↓	
		PROJ					
		%					
	E4	AUTH					
		PROJ					
		%					
	⋮						

PROJECTED STRENGTH
OVERALL

<u>MOS</u>		<u>CURR</u>	<u>+1</u>	<u>+2</u>	<u>+3</u>	...
MOS-3	AUTH	↓	↓	↓	↓	
↓	PROJ					
	%					
MOS-3	AUTH					
	PROJ					
	%					
	⋮					

Figure 3.3.1. Inventory Output Formats

- Be generated automatically when deviation between projected inventory and projected authorizations exceeds management-prescribed thresholds.
- Consider each dimension of the command, grade, and MOS-3 matrix.
- Highlight for management attention any cell or cells that depict future problem areas.

Table 3.3.1 summarizes the functional information requirements for the Inventory core area.

3.3.2.2 Projection Uses

The use of inventory projections to satisfy requirements for projected information in functional areas is integral within the inventory projection process itself. This is because of the complex, iterative interrelationships among the several functional areas. For example, a change in the accessions projection will cause a change in the inventory projection and/or a change in the projections of reenlistments, reclassifications, promotions, training requirements, and distribution.

For use in producing functional area forecasts, inventory projections must meet the most severe constraint of any functional area in level of detail and timing. These functional requirements are detailed in Table 3.3.2; selecting the most severe constraint requires inventory projection to:

- Be updated monthly.
- Provide monthly projections for the current and budget years.
- Provide quarterly projections for the subsequent 2 years.

Level of detail must include:

- | | |
|---------|------------------------------|
| • MOS-3 | • SQI |
| • Grade | • Term of Service |
| • Sex | • Months to ETS |
| • YOS | • CMD of Assignment |
| • ASI | • Term of Initial Enlistment |
| • LIC | • Date of Rank |
| • DEROS | |

TABLE 3.3.1
INVENTORY FUNCTIONAL INFORMATION REQUIREMENTS
FOR MANAGEMENT USE

<u>Requirement</u>	<u>Detail</u>	<u>Timeliness</u>
Projected Inventory	MOS-3 Grade Command	Generate monthly; monthly projections for current and budget year, quarterly for 2 planning years
Exception Reports	As above	As required

TABLE 3.3.2
INVENTORY FUNCTIONAL INFORMATION REQUIREMENTS
FOR PROJECTION USE

Area	Detail	Timeliness
Force Management	MOS-3 Grade Sex YOS	Provide quarterly; end-year projections for current plus 3 fiscal years
Training--Entry Level Training	MOS-3 Sex	Provide quarterly; end-year projections for current plus 3 fiscal years
--Advanced Level Training	MOS-3 Grade Sex	Provide quarterly; end-year projections for current plus 3 fiscal years
--ASI	MOS-3 ASI	Provide quarterly; end-year projections for current plus 3 fiscal years
--SQI	MOS-3 SQI	Provide quarterly; end-year projections for current plus 3 fiscal years
Reenlistments	MOS-3 Grade YOS Months to ETS Sex Term of initial enlistment	Provide quarterly; monthly for current and budget fiscal years, quarterly for 2 planning years
Promotions	MOS-3 Grade Sex YOS	Provide monthly; monthly for current year, quarterly for the budget year, and year-end figures for 2 planning years
Reclassifications	MOS-3 Grade Sex YOS	Provide monthly; monthly for current and budget year, quarterly for 2 planning years
Distribution	MOS-3 Grade CMD	Required monthly for current and budget years, quarterly for remaining planning years

No formal specification has been made for accuracy of individual projections within the Inventory area as the attainable accuracy will vary according to the specific data and future time length being projected. In general, the more detail required, the more difficult it is to achieve a given level of accuracy. The degree of accuracy that is acceptable and attainable involves experimentation and tradeoffs with cost and system complexity and, therefore, should be determined jointly by EPMD and the system developer as the projection methodologies become more precisely described.

In the aggregate, however, inventory projections must have the capability of agreeing with projections contained in the Active Army Military Manpower Program (AAMMP).

3.3.3 Relationships

Figure 3.3.2 depicts the general relationship among the Inventory core area, Authorizations core area, functional and special areas, and other systems. More than any other single area, Inventory both impacts and is impacted by other areas.

During the inventory projection process, the interrelationships among the functional areas become of paramount importance. It is by projecting the inventory that both the desired and expected programs are generated for the functional areas; conversely, the expected functional area programs are what will be needed to project the inventory.

In addition to the relationships with the functional areas, Inventory has a vertical relationship with the AAMMP system; aggregated inventory projections must be consistent with total Army projections found in the AAMMP.

3.3.4 Input and Processing

This section defines, at a conceptual level, the input and processing needed to project the inventory. Figure 3.3.3 depicts the input and processing relationships for the Inventory area.

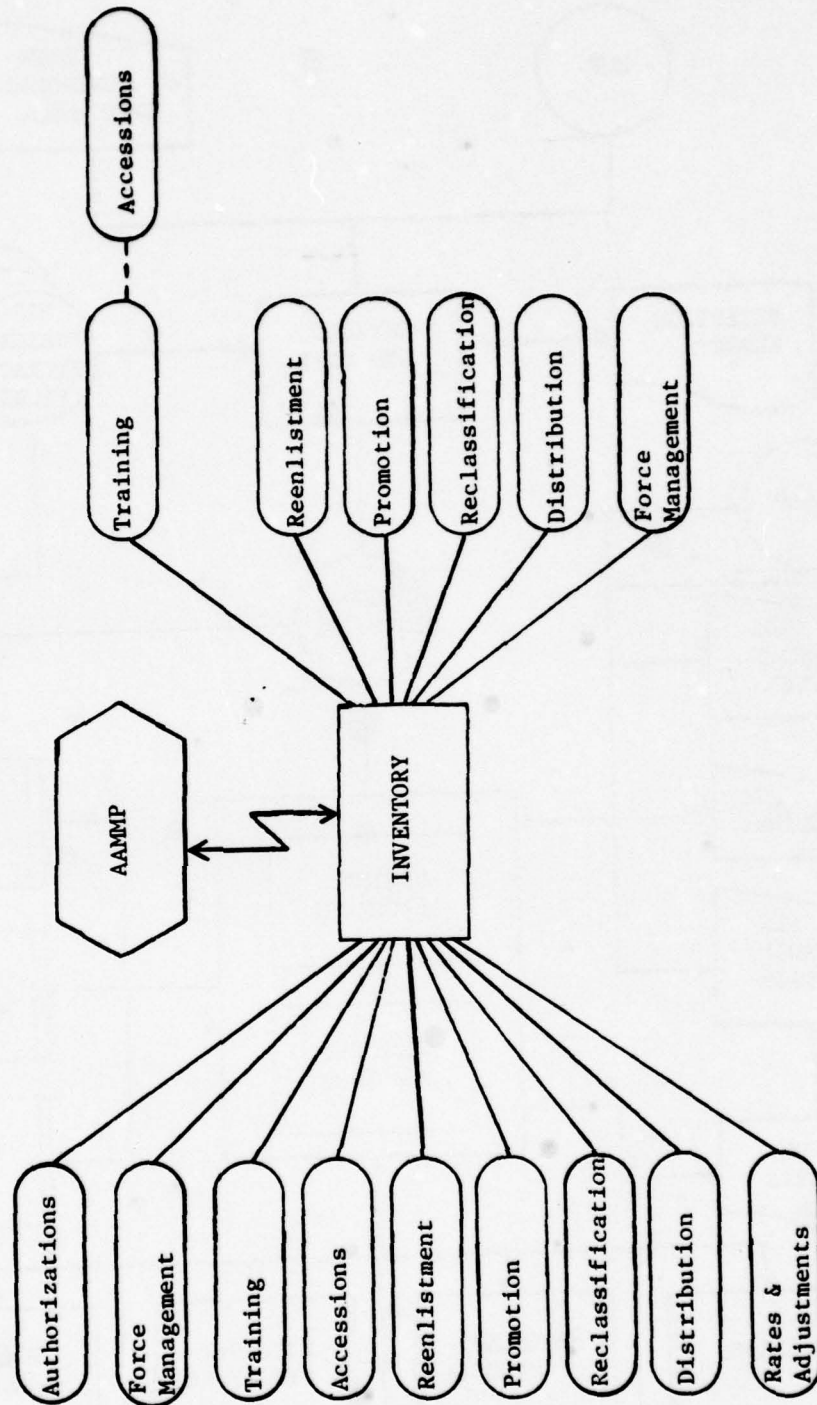


Figure 3.3.2. Inventory Relationships

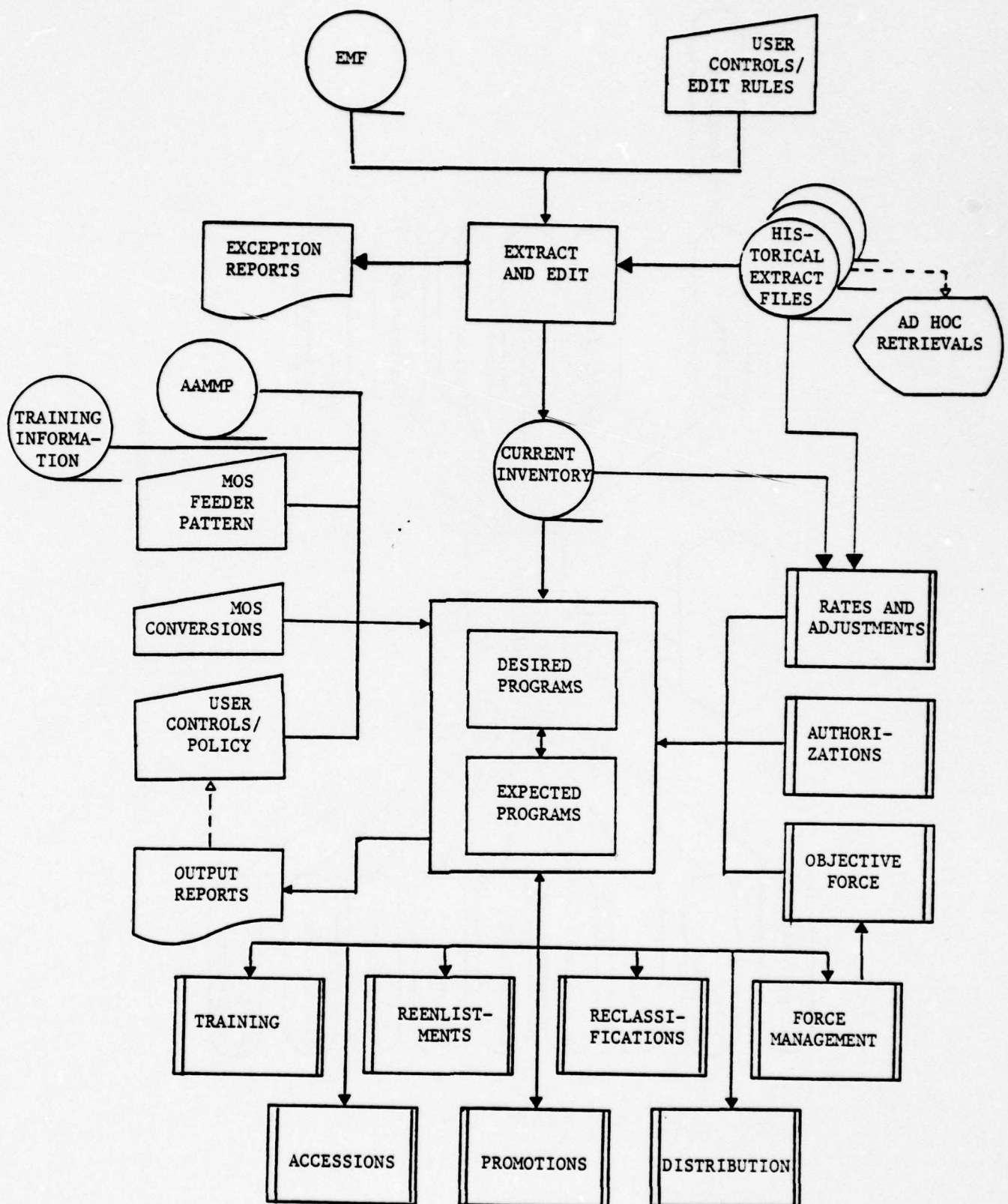


Figure 3.3.3. Inventory Input and Processing

3.3.4.1 Input

MOS Conversions. Planned changes to the classification system, past, current, and future, should be input from the DA 611-Series Circulars. Figure 3.3.4 provides an example of the type of data found in these documents (as taken from DA Cir 611-63).

Active Army Military Manpower Program (AAMMP). The AAMMP provides approved, total-Army forecasts. The EPMD system must be designed to assure consistency (in the aggregate) between EPMD forecasts and AAMMP forecasts. Table 3.3.3 shows data from the AAMMP which would be used for EPMD forecasting.

MOS Feeder Pattern. AR 611-201 defines the approved career progression patterns ("feeder pattern") within each CMF. Figure 3.3.5 shows a typical feeder pattern from AR 611-201. These patterns should be input so as to identify the normal flow within the CMFs. Since more than one pattern may be encountered over the period of the projection, each pattern input must include the time frame for which it is effective.

Authorizations. These data, generated in the Authorizations core area (Section 3.2), provide the projected, approved authorizations which are the goals toward which the inventory should be projected. Table 3.2.1 (in Section 3.2) lists the projected authorizations data required by the various functional areas.

Objective Force. These data, generated in the Force Management functional area (Section 3.4), are similar to projected authorizations in that they also provide goals toward which the inventory should be projected. These data have the additional detail of years-of-service and male/female objectives; they represent the enlisted force idealized from a personnel management point of view. In the aggregate, however, they will equal the projected authorizations data in terms of total spaces and grades for each MOS. The description of these data can be found in Section 3.4

PART II. MOS Change Reclassification Guidance

1 Career Management Field, MOS, Title and Summary of Change	2 Personnel Currently in MOSC	3 Reclassification Guidance	4 With the Reclassified Into	5 TAADIS Guidance	6 Auth Grades Low to High	7 Title of MOS When Different Than Title Shown in Column 1
CMP 13—FIELD ARTILLERY						
15B SERGEANT Missile Crewman (Deleted). MOS deleted from structure as it is no longer required.	15B10 15B20 15B30	<p><i>Personnel:</i> All personnel will be reclassified to an appropriate skill level in MOS 15D (LANCE Missile Crewman), unless prior experience and training indicate another more appropriate MOS.</p> <p><i>Positions:</i> Positions will be changed to reflect other MOS as appropriate or will be deleted from authorization documents.</p>				
CMP 31—FIELD AND AREA COMMUNICATIONS MAINTENANCE						
The Qualification portion of MOS 31M (Multichannel Communications Equip Op), 31N (Tactical Circuit Controller), 32D (Fixed Station Technical Controller), 36C (Telephone Installer and Lineman), 72E (Telecommunications Center Sp), 72G (Data Communications Switching Center Sp), 05B (Radio Operator), and 05C (Radio Teletype Operator) has been revised to reflect the qualification "Clearly enunciate English."		Individuals presently classified in these MOS will not be reclassified based solely on this added qualification.				
CMP 67—AVIATION MAINTENANCE						
67T Tactical Transport Helicopter Repairer (Added). MOS added to identify personnel and positions supporting the new Utility Transport Helicopter (BLACKHAWK) (UH-60).	Any CMP 67 MOS qualified Helicopter Repairer	Any CMP 67 helicopter repair personnel who have become qualified on the UH-60 helicopter during the testing and preflying phases of the UH-60 development will be awarded MOS 67T	67T10 67T20 67T30		PFC, SP4 SGT SSG	

TAGO 201A

15 June 1978

Cir 611-63

APPENDIX B

B-1. Reclassification of unfilled requisitions on file at MILPERCEN will be accomplished as indicated below. The effective date for these reclassifications is 1 September 1978.

B-2. An asterisk (*) will be used to indicate MOS or skill levels that are to be deleted. These MOS and skill levels will become invalid on the effective date.

B-3. The SQI on the requisition will be retained unless otherwise indicated.

B-4. Requisition reclassification guidance for part II, appendix A actions:

a. Commanders must request modification of requisitions effected by ASI, SQI, or Standards of Grade Authorization (SGA) change.

b. Modification requests will be forwarded to HQDA (DAPC-EPS-C) Alexandria, VA 22331. Provide the EPD control and line number of the requisition item affected and the action to be accomplished.

c. Part II reclassification table:

A	B	C	D
If Rqn MOS Is:	And Pay Grade Is:	MILPERCEN Action:	Rqn Cdr Action:

CMF 13

*15B----- All----- Requisitions currently on file at None.
MILPERCEN will become invalid and will be canceled on the effective date.

Figure 3.3.4. (Cont.) MOS Conversions

TABLE 3.3.3
INPUT FROM ACTIVE ARMY MILITARY MANPOWER PROGRAM

Attrition (unscheduled) Losses

Reenlistment Objectives

- First Termers
- Careerists

Accessions

- Annual prior-service objectives
- Annual no-prior-service objectives
- Monthly distribution
- Female objectives
- Draftees (mobilization mode)

Annual Female Objectives

Number Entering Initial Training

C 11, AR 611-201



Figure 3.3.5. Feeder Patterns

Functional Area Programs. The programs generated for each of the functional areas--Training, Accessions, Reenlistments, Promotions, Reclas-sifications, and Distribution--will provide the expected action which will define what form the projected inventory will take.

Rates and Adjustments. These data provide the various rates, factors, and adjustments that will be required to project the inventory. The precise data required, their form, and their method of derivation will be defined as the system itself is defined.

Enlisted Master File (EMF). The EMF is a centrally maintained data base containing all required data pertinent to the current strength status of the Active Army enlisted force. Data are extracted from this file each month to provide a historical series of monthly "snapshots" of the enlisted force. Table 3.3.4 lists the data which should be extracted from the EMF.

Experience has shown, however, that data found on the EMF are neither thoroughly accurate nor consistent; delays in making updates, invalid data transmissions, partial updates, etc., all contribute to errors in data which, if left uncorrected, would adversely affect projections. Extensive preprocessing will be required on the extracted data to edit it to achieve maximum consistency. Much of the required editing is currently being done in the EMF extracts generated for ELIM-COMPLIP, although the greater level of detail required for EPMD will uncover additional areas where editing will be needed. Appendix E discusses editing procedures and provides examples of edit rules.

The extract process, with required editing, should be performed monthly. As each new month's extract is developed, it should be appended to the file containing extracts of previous months.

The extract and edit processing provides two types of data which may be of substantial benefit to EPMD. The first of these is an

TABLE 3.3.4
EMF EXTRACTS--DATA ELEMENTS

SSN	Date Eligible to Return from Overseas
Sex	Area of Current Foreign Service Tour
Service Component	Current Assignment Code
Active/Inactive Indicator	AFQT Percentile
Race	Location Code-Organizational Master
Term of Enlistment	Civilian Education
ETS Date	Date of Birth
Basic Active Service Date	Duty MOS
Type of Last Accession	Primary MOS
Date of Last Accession	Basic Pay Entry Date
Pay Grade	Status Code - Organizational Master
Date Commenced Current Overseas Tour	Date of Rank
Non-CONUS Residence	Language Identification Code
Additional Skill Identifier	Date Last Change in PMOS
Type Last Change in PMOS	NCO Education System
Number Times Enlistment/ Reenlistment	Security Clearance
Promotion MOS	
Command	

exception report which can be generated as part of the editing process. As EMF data are edited, statistics can be collected and a report generated to provide information on records on which errors were found and the types of errors.

The second is a capability for ad hoc information retrieval. The series of extracts provide a data base of past and current information on the enlisted force. A properly structured inquiry system would provide EPMD managers with the capability of generating specialized reports for specific problems.

3.3.4.2 Processing

The processing in this core area might best be described as a two-phased, iterative process. Conceptually, for each increment in the projections, two distinct phases need to be calculated: the desired programs which are required to meet specific, predefined goals (projected authorizations and/or objective force) and the expected "take" for the programs. The first phase involves determining what actions--constrained only by general policy guidelines and reasonableness of the results (e.g., 100% reenlistment would certainly be unreasonable)--would be required to project the inventory from some point in time, τ , so that it will match a set of goals at some future point in time, $\tau + t$. The second phase, on the other hand, would "free flow" the inventory based on factors such as desired programs, specific policies in effect, historical rates, etc., to determine those actions that can be expected to occur and, therefore, will define what the expected inventory will be at time $\tau + t$.

The iterative process will come into play both during and between the projection increments. During a projection increment, the iterative concept defines the interrelationships among the functional areas. The programs of any one functional area, both desired and expected, will have an impact on programs of other areas. The calculations of the program for any functional area can only be done by dynamically weighing the programs of all the areas and assessing

their mutual impacts and interrelationships. Having done this, the inventory can then be projected based on the expected results of the various programs; this projected, expected inventory will then define the starting point for the next projection increment.

As the projections are being generated, several factors should be considered, although the exact considerations may vary between desired and expected programs. These factors include:

- Accessions. The ability to forecast the number of accessions required to meet authorized strength levels. The system must be capable of forecasting volunteers (PS and NPS), draftees, and mobilized reserves. Section 3.6 provides a detailed statement of accession requirements.
- Attrition. Forecasts of attrition--i.e., unscheduled--losses to the Army are needed in order to make forecasts in support of all the functional areas of concern. The total of all attrition losses should be consistent with the AAMMP; but this total must be subdivided to meet the detail and timing requirements of the functional areas, as outlined in Table 3.3.2.
- Reenlistments. The system must have the capability of determining the number of reenlistments and extensions for both first-termers and careerists. Of equal importance for projection are non-reenlistments, i.e., those who separate upon reaching their ETS. Section 3.7 details the requirements for reenlistments.
- Promotions. Promotions and demotions should be included to show flow along career progression ladders. Section 3.8 defines the requirements for promotions; demotion figures should be developed based on historical experience.
- Reclassifications. A reclassification occurs whenever an individual changes an MOS-3; such actions will not be confined to the feeder pattern flows defined in AR 611-201.

Tables 3.3.5 and 3.3.6 depict examples of reclassification flow other than that defined by the feeder patterns. Reclassifications may be voluntary, directed (e.g., for the purpose of improving MOS-strength balance), or mandatory (e.g., physical disqualification); they may be in conjunction with promotion or reenlistment, or they may reflect migration within the force. All such actions should be forecast in any system designed to support EPMD requirements. Reclassification requirements are detailed in Sections 3.7 (Reenlistment), 3.8 (Promotion), and 3.9 (Reclassification).

- Force Management. Gains and losses to each year group through aging should be considered. Section 3.4 describes the Force Management requirements.
- Training. Training constraints and requirements must be included to address actions needed to maintain the trained inventory at its authorized levels. This process should consider the training requirements generated by in-service assets during reclassification and reenlistment actions, as well as training requirements generated by new accessions. Specific requirements for training are detailed in Sections 3.5 (Training), 3.6 (Accessions), 3.7 (Reenlistments), and 3.9 (Reclassifications).
- TTHS. Personnel in the overhead accounts provide trained, or soon to be trained, inventory resources which are not actively filling a PERSACS authorization. MILPERCEN forecasting, however, requires that these resources be considered. Table 3.3.7 shows an example of TTHS data from the Detailed TTHS Report.

TABLE 3.3.5

ENLISTED FORCE RECLASSIFICATION BY GAINING AND LOSING
CAREER MANAGEMENT FIELD (CMF)

Gaining CMF																																	
Losing CMF	11	12	13	16	19	23	27	28	29	31	33	51	54	55	63	64	67	71	74	76	79	81	84	91	92	94	95	96	97	98	TOTAL		
11	20	14	80	32	100	78	58	9	67	148	109	84	48	191	298	288	521	32	176	258	39	38	381	35	28	110	49	1	4			3304	
12	3	353	1	1	3	4	9	13	25	1	9	16	23	13	48	3	18	56	9	5	17	2	3	8	2							645	
13	160	21	349	20	3	19	23	4	38	98	72	39	55	181	153	147	261	18	148	134	16	21	167	35	53	50	12	1				2298	
16	32	7	12	67	38	11	4	21	27	15	10	7	49	37	36	61	4	30	63	1	12	50	4	13	7	3	1					622	
19	16	4	5	17	14	4	5	11	39	11	35	7	52	68	73	118	10	35	86	9	15	76	8	4	26	9						757	
23	3	2	9	321	7	3	13	5	2	3	2	5	3	4	5	2	7	4	3	8	2											413	
27	2	4	1	6	7	7	1	1	1	2	5	1	2	2	3	4	6	1	5	1	3	1	1									64	
28	2	1	3	30	9	5	27	9	1	3	2	1	4	11	5	1	6	1	2	10	3	1										137	
29	4	2	2	5	4	29	10	2	141	48	2	4	2	7	8	10	9	18	18	9	57	1	11	51	1	8	1					464	
31	17	9	13	9	5	59	35	16	187	400	2	30	17	27	65	119	87	157	27	58	111	4	45	252	4	12	35	12	2				1816
33																																14	
51	4	54	3	3	2	9	8	2	9	7	153	7	13	30	20	25	35	5	17	24	9	5	41	2	11	2						500	
54	1	1								2	1	3	1	1	1	1	1	1	4													17	
55	11	1	3	1	2	2	1	2	4	9	11	42	14	8	5	11	3	16	9	1	5	16	1	3	3							184	
63	17	9	17	32	3	17	21	2	18	23	1	29	22	16	253	91	81	80	11	46	99	5	11	98	8	7	21	8	2	2			1050
64	15	5	6	15	9	10	6	2	13	26	42	13	11	56	93	40	78	13	36	67	8	15	68	4	6	12	8	1	2			680	
67	8	5	9	9	7	22	15	3	8	5	13	7	6	28	35	281	38	6	18	47	4	10	64	1	8	1						658	
71	27	12	14	14	8	17	5	1	16	25	1	10	16	17	30	60	23	974	66	55	155	5	24	218	5	13	20	12	9			1852	
74	1	6	3	1	3	1	3	1	2	1	2	2	1	13	75	1	5	1	7	2	1											128	
76	38	13	50	28	6	34	16	3	34	65	24	19	15	77	94	48	165	22	407	69	6	17	210	8	16	29	7	1				1521	
79	11	35	39	36	30	16	10	1	13	114	24	33	7	65	47	73	207	4	94	29	3	15	62	4	18	35	7	6				1138	
81	8	1	2	2	1	2					5	1			6	3	3	3	4	3	5	3										47	
84	4	1	1	1	1	4		8	5	1	2	3	2	5		8	2	1	10	15	20	3	2	1								100	
91	7	6	22	21	1	1	1	8	1	8	11	6	10	11	5	43	7	15	63	3	6	133	5	2	8	2	1	2				1608	
92	1	1			3	2	1	1	5	2	1		8	7	5	7	8	6	1	26	2	1										87	
94	9	3	3	4	2	1	1	5	8	6	2	2	13	20	4	72	5	30	38	2	32	4	26	13	4	3	1					313	
95	93	50	98	129	10	1	1	2	6	21	33	182	67	107	76	12	114	6	122	95	4	16	42	1	16	261	10	1				1576	
96	3	3	3							4	3	1	1	4	1	4	1	12	2	1	13	1	11	7	11	1						83	
97	1					1				2					1	2	4	1	3	2	2	7										40	
98	4	2	2			7	1	3	7	36	3	2	3	4	9	13	5	21	7	4	8	3	9	28	6	13						233	
TOTAL	612	623	735	478	210	727	247	69	677	1167	9	638	526	380	1280	1311	1279	3083	354	1364	1529	132	312	3307	131	225	694	183	24	66			22349

TABLE 3.3.6
FY 78 RECLASSIFICATIONS WITHIN CAREER MANAGEMENT FIELD
CMF 13 - Field Artillery Career Management Field

Gaining MOS	Losing MOS														
	<u>13B</u>	<u>13E</u>	<u>13F</u>	<u>13W</u>	<u>13Y</u>	<u>13Z</u>	<u>15B</u>	<u>15D</u>	<u>15E</u>	<u>15F</u>	<u>15J</u>	<u>17B</u>	<u>17C</u>	<u>82C</u>	<u>93F</u>
13B	5	7						24	8	12	2				
13E	20	17						3	18	3	2				
13F	69	84						2		1				1	
13W					1										
13Y				1											
13Z															
15B															
15D	1						4			8					
15E	12														
15F															
15J		1					2								
17B	2														
17C	1		1				1		3			1			
82C	12							11	6	2	1				
93F															

TABLE 3.3.7
DETAILED THHS REPORT

MOS 11B EMF DATE: ME DEC 78	THHS ACCOUNT PREPARED BY DAPC-EPF 325-0949										PAGE DATE PRINTED: 040379	
	E1-E3	E4	E5	E6	E7	E8	E9	TOTAL	FRAC OF ARMY POPULATION	FRAC EACH ACCOUNT OF TOTAL MOS ARMY	TOTAL MOS POPULATION ON EMF AND FRAC OF ARMY ACCOUNT	FRAC TOTAL ARMY ACCOUNT
TRAINEES (TR, ES)	3684.	49.	10.	0.	2.	0.	0.	3745.	70183.	.05335		
TRANSIENTS (TN, RE, RR)	909.	713.	345.	223.	70.	41.	3.	2304.		.03282		
HOLDEES (DP, PP, PCPS)	759.	135.	61.	17.	37.	28.	5.	1042.		.01484		
STUDENTS (ST, FS)	364.	77.	63.	28.	10.	121.	9.	595.		.00848		
TOTAL THHS	5716.	974.	479.	268.	119.	121.	9.	7686.		.10950		
TRAINEES FRAC	.98371	.01308	.00267	.00000	.00053	.00000	.00000	1.00000		.05335	.09341	
T H S FRAC	.51561	.23471	.11901	.06900	.02969	.03070	.00328	1.00000		.05615	.10663	
TOTAL FRAC	.74369	.12672	.06232	.03487	.01548	.01574	.00117	1.00000	.10700	.10950	.10108	
EMF DATE: ME JAN 79												
TRAINEES (TR, ES)	4045.	51.	13.	1.	1.	0.	0.	4111.	69293.	.05933		
TRANSIENTS (TN, RE, RR)	531.	796.	390.	144.	67.	96.	8.	2032.		.02932		
HOLDEES (DP, PP, PCPS)	711.	129.	50.	20.	23.	26.	8.	987.		.01386		
STUDENTS (ST, FS)	470.	91.	77.	33.	14.	25.	2.	712.		.01028		
TOTAL THHS	5757.	1067.	530.	198.	105.	147.	18.	7822.		.11288		
TRAINEES FRAC	.98395	.01241	.00316	.00024	.00024	.00000	.00000	1.00000		.05933	.09243	
T H S FRAC	.46133	.27378	.13932	.05309	.02802	.03961	.00485	1.00000		.05356	.12452	
TOTAL FRAC	.73600	.13641	.06776	.02531	.01342	.01879	.00230	1.00000	.10545	.11288	.10531	
AVERAGE OF EMFS												
TRAINEES (TR, ES)	3664.	50.	11.	1.	1.	0.	0.	3928.	69743.	.05632		
TRANSIENTS (TN, RE, RR)	720.	754.	367.	183.	68.	68.	5.	2168.		.03108		
HOLDEES (DP, PP, PCPS)	735.	132.	55.	18.	30.	27.	6.	1004.		.01400		
STUDENTS (ST, FS)	417.	84.	70.	30.	12.	134.	13.	653.		.00937		
TOTAL THHS	5736.	1020.	504.	233.	112.	134.	13.	7754.		.11116		
TRAINEES FRAC	.98383	.01273	.00293	.00013	.00038	.00000	.00000	1.00000		.05632	.09269	
T H S FRAC	.48928	.25366	.12886	.06077	.02888	.03502	.00353	1.00000		.05486	.11638	
TOTAL FRAC	.73981	.13161	.06506	.03005	.01444	.01728	.00174	1.00000	.10622	.11118	.10322	
											MOS 11B	

3.3.5 Mobilization Considerations

It can be assumed that mobilization would have several, significant impacts on the inventory processing. The most significant impact on the extract/edit process will be the volume of the data. As personnel assets are activated, records will be placed on the EMF for each individual. The format of the data and the valid data elements will be the same for all records, so the edit procedures should remain valid. However, additional categories of personnel will need to be identified, specifically:

- Draftees
- National Guard
- Reservists
- Other (recalled retirees, etc.)

Significant impacts would almost assuredly occur in the projection processes. Each functional area will be affected in manners discussed in the mobilization portion of the functional area sections; these affects will impact the basic projections and the interrelationships among the functional areas. The projection procedures would also have to handle new types of flow in addition to those defined in the functional areas, to include: casualty rates; flow into and out of missing-in-action, wounded-in-action, and active statuses; different policies which impact functional area relationships; and changes in the rates at which "standard" actions would occur in a mobilization environment.

3.4 FORCE MANAGEMENT

3.4.1 General

The Force Management functional area provides EPMD with information required to accomplish year-group management objectives in the generation of information requirements for other functional areas. Specific uses of this information include:

- Generation of the over/short circular
- Input to the Monetary Incentive Numerical Evaluation System (MINES) in the development of the monetary incentive programs and the budgeting for enlistment and reenlistment bonuses
- Provision of years-of-service objectives needed for the development and management of programs for other functional areas

3.4.2 Functional Information Requirements

3.4.2.1 Management Uses

The information in this functional area provides EPMD managers with the data required to produce the over/short circular. (Figure 3.4.1 provides an example of the information found in the over/short circular, as extracted from DA Cir 611-65, 15 July 1978.) The timing and level of detail required to support this information requirement will be:

- Update quarterly
- End-year projections for current plus 3 additional years
- MOS-3
- Sex
- Years of service
- Grade

Figure 3.4.2 provides formats by which these data might be presented.

APPENDIX A
STRENGTH STATUS BY 3-CHARACTER PMOS
PROJECTED AS OF 30 SEP 78

Thru/From PMOS Code	From Month next Fiscal (CYR)	PRIMARY MILITARY OCCUPATIONAL SPECIALTY (PMOS) STATUS BY FISCAL YEAR GROUP (FYGP) [*]							
		S-KNORTAGE		U-OVER/RENTRENGTH		B-BALANCED		NA-NO REQUIREMENT ^{**}	
		COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8
		FYGP 75 (Nov 1)	FYGP 75 (Nov 2)	FYGP 75 (Nov 3)	FYGP 75 (Nov 4)	FYGP 75-76 (Nov 5)	FYGP 76-77 (Nov 6)	FYGP 77-78 (Nov 7)	FYGP 78-79 (Nov 8)
11B	11	S	B	B	B	B	B	B	B
11C	11	B	B	B	B	S	S	S	S
12B	12	B	B	B	S	S	S	B	S
12C	12	B	B	B	B	S	S	B	B
12E	12	B	B	B	B	S	S	S	B
12Z	12	NA	NA	NA	NA	NA	S	S	S
13B	13	S	B	B	H	B	B	B	B
13E	13	B	B	B	S	S	S	B	B
13W	13	NA	NA	NA	NA	NA	S	S	S
13Y	13	NA	NA	NA	NA	NA	S	S	S
13Z	13	NA	NA	NA	NA	NA	NA	S	S
15D	13	B	B	B	B	B	S	B	B
15E	13	S	S	B	B	B	S	B	S
15F	13	B	B	S	B	B	S	B	NA
15J	13	B	B	B	B	B	B	B	B
16B	16	B	B	S	S	S	S	S	B
16C	16	B	B	S	B	S	B	B	NA
16D	16	B	B	S	B	B	B	B	B
16E	16	D	B	B	B	B	S	S	NA
16H	16	B	B	S	S	S	B	B	B
16J	16	B	S	S	S	S	S	B	NA
16P	16	B	B	B	B	S	S	O	NA
16R	16	D	B	B	B	S	S	D	O
16Z	16	NA	NA	NA	NA	NA	S	S	S
17B	13	B	B	B	B	B	S	B	S
17C	13	S	S	S	S	S	S	S	S
17K	96	B	B	B	B	S	S	S	S
17M	96	S	S	S	S	S	S	S	NA
19D	19	B	B	B	B	B	S	B	B
19E	19	B	B	B	B	B	S	B	B
19F	19	B	B	B	B	B	B	NA	NA
92C	92	B	B	B	R	S	S	O	O
92D	94	B	B	B	B	O	B	NA	NA
93E	94	S	B	R	B	B	B	B	B
93F	93	R	B	B	B	B	B	B	B
93H	94	B	B	B	B	B	S	S	B
93J	94	B	B	B	R	O	B	S	S
94B	94	B	B	R	B	B	B	O	O
94F	94	B	S	B	B	B	B	B	B
95B	95	B	B	B	O	B	S	H	B
95C	95	O	O	O	O	B	B	B	B
95D	95	S	S	B	O	B	S	S	S
96B	96	B	B	S	S	B	S	O	O
96C	96	S	B	B	B	B	E	B	B
96D	96	O	B	B	B	O	B	S	O
96Z	96	NA	NA	NA	NA	NA	NA	S	S
97B	96	S	S	S	S	B	S	B	B
97C	96	NA	NA	NA	S	S	S	S	S
98C	98	B	S	B	B	B	S	S	S
98J	98	B	B	B	B	S	S	S	S
98Z	98	NA	NA	NA	NA	NA	S	S	S
00E	70	B	B	B	B	B	S	S	S
00J	71	NA	NA	NA	S	S	S	S	S
00U	71	S	S	S	B	S	B	B	B
01H	91	B	B	S	B	S	S	NA	NA
03C	71	S	S	B	S	S	S	B	B
05B	31	S	S	S	S	S	B	NA	NA
05C	31	S	S	S	S	B	B	B	NA
05D	98	S	B	B	B	S	B	B	NA
05G	98	B	B	B	B	B	B	S	S
05H	98	S	B	B	B	B	B	B	B
05K	98	B	S	B	B	B	S	B	B

* A fiscal year group (FYGP) is based on the soldier's basic active service date (BASD).

**Soldiers who possess an MOS in which no requirement is reflected in their FYGP (indicated by "NA") will be managed by the status of their PMOS in the nearest FYGP.

Notes:

1. Soldiers who have a BASD from 1 Oct 75 through 30 Sep 76 (inclusive) will be controlled by the PMOS status shown in Col 1, FYGP 76.
2. Soldiers who have a BASD from 1 Oct 76 through 30 Sep 77 (inclusive) will be controlled by the PMOS status shown in Col 2, FYGP 77.
3. Soldiers who have a BASD from 1 Oct 77 through 30 Sep 78 (inclusive) will be controlled by the PMOS status shown in Col 3, FYGP 78.
4. Soldiers who have a BASD from 1 Oct 78 through 30 Sep 79 (inclusive) will be controlled by the PMOS status shown in Col 4, FYGP 79.
5. Soldiers who have a BASD from 1 Oct 79 through 30 Sep 80 (inclusive) will be controlled by the PMOS status shown in Col 5, FYGP 80-81.
6. Soldiers who have a BASD from 1 Oct 80 through 30 Sep 81 (inclusive) will be controlled by the PMOS status shown in Col 6, FYGP 81-82.
7. Soldiers who have a BASD from 1 Oct 81 through 30 Sep 82 (inclusive) will be controlled by the PMOS status shown in Col 7, FYGP 82-83.
8. Soldiers who have a BASD from 1 Oct 82 through 30 Sep 83 (inclusive) will be controlled by the PMOS status shown in Col 8, FYGP 83-84.

Figure 3.4.1. Over/Short Circular

15 July 1978

Cir 611-65

APPENDIX B

STRENGTH STATUS OF FEMALE PERSONNEL

1. The following listing shows those MOS where the actual and projected female strength exceeds the objective established for the MOS. The list will be used in conjunction with the status in the Army-wide status table in appendix A. Female soldiers will not be reclassified nor reenlisted into these MOS from other MOS.

FYGP 75 AND 74 OVERSTRENGTH MOS

MOS	MOS	MOS
42C	73D	91N
42E	75C	91P
71C	75D	91Q
71D	75E	91R
71E	91B	91S
71G	91C	91U
71L	91D	92B
71M	91E	01H
73C	91H	

FYGP 75 AND 74 SHORTAGE CMF

Note. CMF 71 and 91 are overstrength in female personnel. Female soldiers not currently holding a PMOS in CMF 71 or 91 may neither reenlist for training nor reclassify into an MOS in these CMF's. However, this does not preclude a female soldier who currently holds a PMOS in CMF 71 or 91 from requesting reenlistment in her PMOS or, if otherwise qualified, from reenlisting or reclassifying into a new MOS in those CMF's provided the MOS is not listed above.

2. Other actions pertaining to female soldiers will be governed by appendix A.

Figure 3.4.1. (Cont.) Over/Short Circular

OVER/SHORT DATA AS OF MONTH/YEAR

CMF: XX MOS: MOS-3

<u>YOS</u>		<u>FISCAL YEAR</u>			
		<u>CURR</u>	<u>+1</u>	<u>+2</u>	<u>+3</u>
1	OBJ	↓	↓	↓	↓
	INV				
	O/S				
2	OBJ				
	INV				
	O/S				
	.				
	.				
	.				

FEMALE OVER/SHORT DATA AS OF MONTH/YEAR

<u>MOS</u>	<u>CMF</u>	<u>FISCAL YEAR</u>			
		<u>CURR</u>	<u>+1</u>	<u>+2</u>	<u>+3</u>
MOS-3	XX	↓	↓	↓	↓
↓	↓				

Figure 3.4.2. Force Management Output Formats

3.4.2.2 Projection Uses

Force Management information is a key component of the inventory projection process and directly impacts the generation of desired programs in virtually all other functional areas. In particular, this functional area defines the objective force toward which the inventory should be managed. Projected authorizations data, as defined in the Authorizations core area, define officially approved manpower spaces which must be filled if the Army is to meet its mission. The objective force, on the other hand, defines a desirable distribution of the authorizations which, if achieved, would enable the Army's enlisted force to function most effectively. The timing and level of detail required to support this information are:

- Update monthly (the more frequent update cycle than found in management uses is to meet the timing requirements of the Inventory core area)
- End-year projections for current plus 3 years
- Years of service
- MOS -3
- Grade
- Sex

Table 3.4.1 summarizes the functional information requirements for the Force Management area.

TABLE 3.4.1

FORCE MANAGEMENT--FUNCTIONAL INFORMATION REQUIREMENTS

<u>Information Requirement</u>	<u>Detail</u>	<u>Timing</u>
Management Use (Over/short)	MOS-3 Grade Sex YOS	Update quarterly; annual projections for current plus 3 years
Projection Use (Objective Force)	MOS-3 Sex YOS Grade	Update monthly; annual projections for current plus 3 years

3.4.3 Relationships

Figure 3.4.3 provides a simplified picture of the relationships between the Force Management functional area and other areas. Areas which significantly impact Force Management are:

- Authorizations, which provides the budgeted, approved manpower requirements with which Force Management information must be consistent
- Inventory, which provides the projected strength data needed to develop the over/short information

Force Management, in turn, provides information which has significant impact on virtually all other defined areas by defining the desired inventory needed to develop specific programs. Areas on which Force Management has a direct impact are:

- Reclassifications
- Reenlistments
- Accessions
- Promotions
- Inventory

3.4.4 Input and Processing

This subsection describes, at a conceptual level, the input and processing that is needed to fulfill the functional information requirements for the Force Management functional area. Figure 3.4.4 depicts the general input and processing described.

3.4.4.1 Input

- Enlisted Force Management Plan. This plan was originally developed in response to a 1968 directive from the Assistant Secretary of Defense for Manpower and Reserve Affairs, ASD (M&RA), charging each armed service with the development of comprehensive personnel management plans. The Army's plan, as revised, was approved by the Office of the Secretary of Defense (OSD) in September 1978.

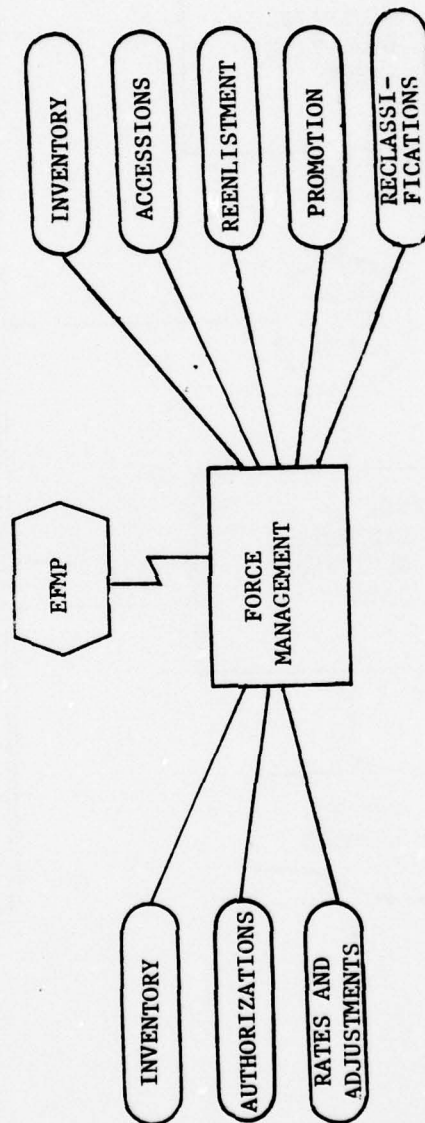


Figure 3.4.3. Force Management Relationships

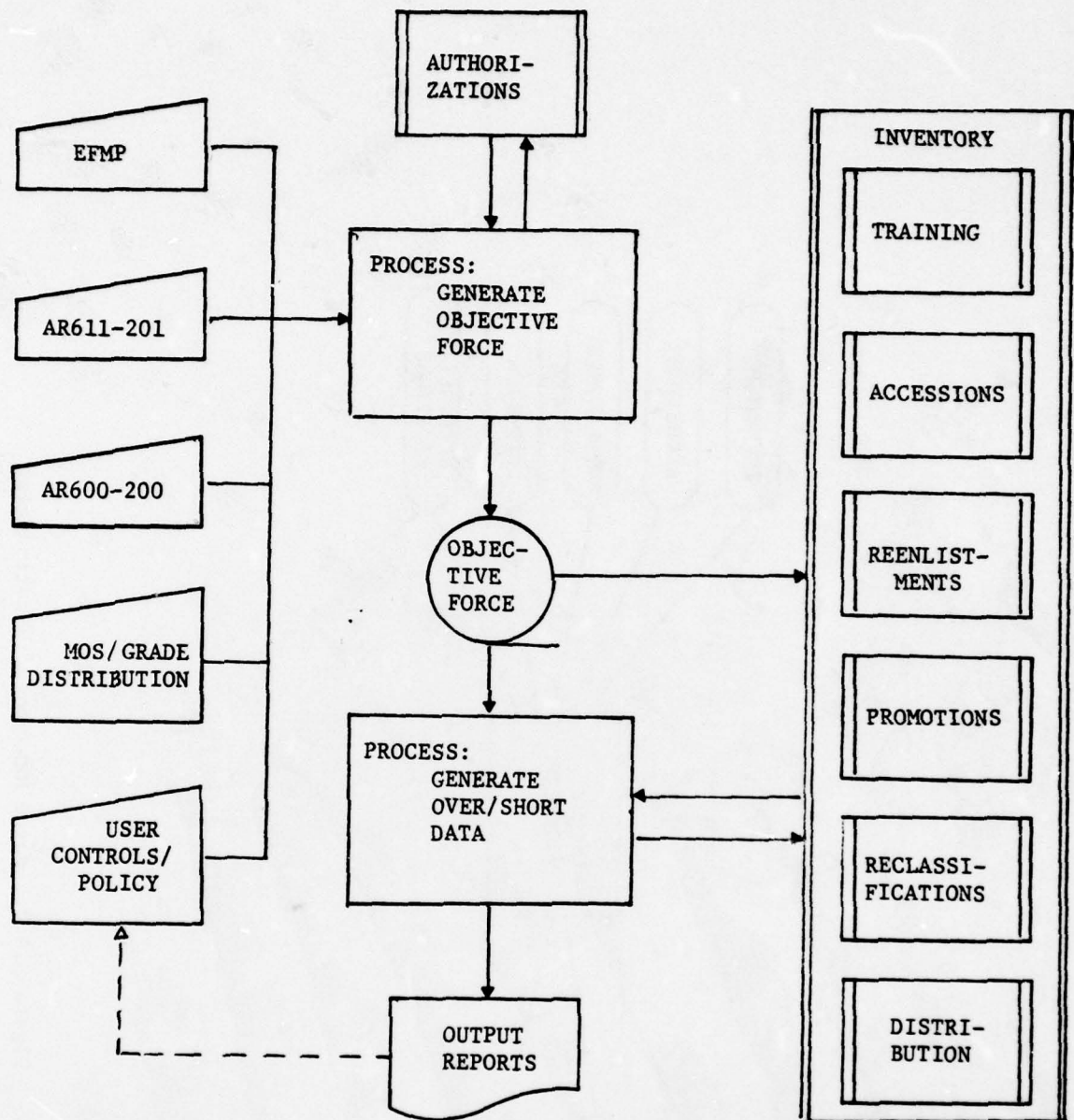


Figure 3.4.4. Force Management Input and Processing

DOD Directive 1304.20, 8 October 1974, requires that plans be updated annually. This source provides the official Army objective force. Figure 3.4.5 shows an example of the type of data available for each CMF. Data specifically needed for this or other functional areas are:

- Reenlistment objectives (for Reenlistments functional area)
 - Prior-service accession objectives (for Accessions functional area)
 - Grade/years-of-service distribution at the total-Army level
- Authorizations. The authorizations data required by this area will be provided by the Authorizations area described in Section 3.2. While the EFMP objective force provides goals toward which EPMD should manage to maintain a desirable enlisted force structure, authorizations provide goals toward which EPMD must manage the enlisted force to meet the Army's mission. Data should be categorized by:
 - MOS-3
 - Grade
 - Sex
 - AR 611-201. This Army regulation provides the definitions of the MOSs in each CMF and the feeder patterns associated with each CMF. Figure 3.3.5 (in Section 3.3, Inventory) shows an example of a feeder pattern for CMF 13, Field Artillery. This regulation also provides for Standards of Grade Authorizations (SGA) guidance for each MOS. Figure 3.4.6 is an excerpt from Section 1-9 of AR 611-201, which shows how SGA guidance is presented.

CMF 13 - FIELD ARTILLERY

A. Annual retention goals for the steady-state objective CMF.

1. First term reenlistment objective:

First Term 3 year enlistment: 1653
First Term 4 year enlistment: 623

2. Career reenlistment objective: 3103

3. Prior Service Accession objective: 548

B. Grade Structure.

1. Top five (E5-E9) content: 36%

2. Top six (E4-E9) content: 65%

C. Force Mix.

1. First term base: 24412 (52%)

2. Career content: 21567 (48%)

3. Total strength objective CMF 13 : 44979

D. Years-of-Service group comparison; current CMF vs objective CMF:

<u>YOS GROUPS</u>	<u>FY 77</u>	<u>OBJECTIVE</u>	<u>STATUS</u>
1-3	28260	23412	+ 4848
4-6	9161	8175	+ 986
7-10	3425	6583	- 3158
11-20	3852	6212	- 2360
20+	618	597	+ 21

Figure 3.4.5. Enlisted Force Management Plan

YEAR	FORCE STRUCTURE CHF 13							TOTAL
	E1-3	E4	E5	E6	E7	E8	E9	
1	8598.	82.	0.	0.	0.	0.	0.	8680.
2	4183.	1396.	23.	0.	0.	0.	0.	5599.
3	720.	6452.	0.	0.	0.	0.	0.	7172.
4	141.	2307.	948.	0.	0.	0.	0.	3396.
5	2.	868.	1655.	1.	0.	0.	0.	2527.
6	0.	664.	1583.	3.	0.	0.	0.	2252.
7	0.	531.	1444.	8.	1.	0.	0.	1984.
8	0.	940.	887.	434.	2.	0.	0.	1764.
9	354.	305.	374.	637.	4.	0.	0.	1511.
10	0.	0.	295.	422.	14.	0.	0.	1324.
11	0.	0.	250.	544.	65.	0.	0.	932.
12	0.	0.	225.	371.	205.	1.	0.	859.
13	0.	0.	0.	291.	3.	0.	0.	803.
14	0.	0.	0.	254.	3.	0.	0.	550.
15	0.	0.	0.	204.	7.	0.	0.	532.
16	0.	0.	0.	174.	332.	13.	0.	520.
17	0.	0.	0.	159.	323.	29.	1.	612.
18	0.	0.	0.	152.	303.	48.	2.	504.
19	0.	0.	0.	149.	270.	77.	4.	502.
20	0.	0.	0.	147.	241.	98.	10.	496.
21	0.	0.	0.	0.	97.	74.	14.	187.
22	0.	0.	0.	0.	44.	49.	18.	124.
23	0.	0.	0.	0.	30.	39.	21.	90.
24	0.	0.	0.	0.	22.	23.	23.	68.
25	0.	0.	0.	0.	0.	1.	24.	35.
26	0.	0.	0.	0.	0.	5.	30.	30.
27	0.	0.	0.	0.	0.	0.	24.	24.
28	0.	0.	0.	0.	0.	0.	17.	17.
29	0.	0.	0.	0.	0.	0.	12.	12.
30	0.	0.	0.	0.	0.	0.	8.	8.
TOTAL	14645.	13353.	8198.	4504.	2576.	497.	204.	44979.
PROMOTION OPPORTUNITY	.9990	.7495	.7196	.7046	.5627	.9999	.0000	

Figure 3.4.5. (Cont.) Enlisted Force Management Plan

c. *Grading pattern.* The diagram below is an illustration of a grade standard pattern for an individual MOS. This pattern indicates the duty position and grade composition for various levels of staffing. In this example, the pattern is established in the first five positions.

Standards of Grade Authorization

Line	Duty Position	Code	Rank	Number of positions authorized*					Explanatory Notes
				1	2	3	4	5	
1	Specialist -----	XXXXX	PFC		1	1	1	2	Grades of additional positions will be authorized in same pattern.
2	Specialist -----	XXXXX	SP4	1	1	2	2	2	
3	Specialist -----	XXXXX	SP5				1	1	

*Blank spaces in this column indicate not applicable.

Figure 3.4.6. Standards of Grade Authorization (SGA) Format as Found in AR 611-201.

- AR 600-200. This Army regulation is the source document for the Enlisted Personnel Management System (EPMS); it provides the guidelines upon which all enlisted management actions are to be based. Specific data required from this source will be current promotion guidelines (summarized in Table 3.4.2); this document's general guidance must be considered at all times.
- EPMS MOS/Grade Distribution. This document, generated by the EPMS Task Force (DAPC-EPZ-H), MILPERCEN, provides specific grade distributions within each MOS, by CMF. Table 3.4.3 provides an example of the data from this document; the complete document is in Appendix G of this report.

Table 3.4.4 summarizes Force Management input requirements.

3.4.4.2 Processing

Processing for the Force Management functional area should be in two distinct categories:

TABLE 3.4.2
ARMY ENLISTED PROMOTION CRITERIA

For Promotion To	Minimum Time-In-Service (TIS)	Minimum Time-In-Grade **	Minimum Civilian Education/Equivalent	Selection Level	Frequency Of Selection
Grade E2	6 mos. *	—	NA	Unit	Daily
Grade E3	12 mos. †	4 mos.	NA	Unit	Daily
Grade E4	24 mos. ‡	6 mos.	NA	Unit	Daily
Grade E5	36 mos. ¶	8 mos.	8	Local Selection Board ¶	Monthly
Grade E6	7 years ¶	10 mos.	12	Local Selection Board ¶	Monthly
Grade E7	None. Considered in Determining Zone	As Announced in Zone	12	Dept. of Army	Annually
Grade E8	None. Considered in Determining Zone	As Announced in Zone	12	Dept. of Army	Annually
Grade E9	None. Considered in Determining Zone	As Announced in Zone	12	Dept. of Army	Annually

* Accelerated advancements to grade E2 are permitted for soldiers with 4 but less than 6 mos. TIS; limited to a percentage of assigned and attached E2.

† Field commanders may promote to grade E3 soldiers with 6 but less than 12 mos. TIS; limited to a percentage of assigned and attached E3.

‡ Field commanders may promote to grade E4 soldiers with 15 but less than 24 mos. TIS; limited to a percentage of assigned E3 and E4 who have 15 but less than 24 mos. TIS.

¶ Meet eligibility criteria and attain local list status based on 1,000 point standardized scoring system. Soldiers who meet the minimum time-in-service requirement are placed in the primary zone, and those requiring a waiver are placed in the secondary zone. Each month available promotions are determined by HQDA, and cutoff scores are then announced allowing that number of promotions to be made. Soldiers with the highest number of points in each MOS and zone (primary or secondary) will receive available promotions. E5 waived have at least 24 mos. but less than 36 mos. E6 waived have at least 60 mos. but less than 84 mos.

** May be waived by one-half.

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TABLE 3.4.3

CMF 64 GRADE DISTRIBUTIONCMF 64 (TRANSPORTATION) GROUP II*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
61B	.2084	.3897	.2058	.1212	.0750			1147
61C	.3857	.2314	.1680	.1322	.0826			726
61F	.2344	.5781	.1250	.0469	.0156			64
61Z	—	—	—	—	—	.9600 [†]	.0400	25
57H	.3669	.2482	.1247	.1535	.1067			834
64C	.2777	.4326	.1571	.0980	.0346			20460
64Z	—	—	—	—	—	.9009 [†]	.0991	323
71N	.2259	.2828	.1202	.1865	.1846			1598
71P	.2772	.2956	.1352	.0872	.1286	.0687	.0074	1353
93E [†]	.3085	.3052	.1331	.1266	.1006	.0260		308
93H	.2162	.2908	.1947	.2162	.0822			791
93J	.1949	.2394	.1782	.2160	.1114	.0568	.0033	898
<hr/>								
TOTAL	.2695	.3900	.1550	.1117	.0559	.0163	.0016	<u>28219</u>

NOTES:

* CMF was implemented under EPMS by Change 5, AR 611-201, March 76.

[†] MOS was transferred from CMF 00 and implemented under EPMS by Change 9, AR 611-201, March 78.

TABLE 3.4.4
FORCE MANAGEMENT--SUMMARY OF INPUT

<u>Input</u>	<u>Source</u>	<u>Detail</u>	<u>Comments</u>
Total-Army objective force	Enlisted Force Management Plan	CMF YOS Grade	Provides basic objectives for: Reenlistments Prior-service accessions YOS distribution
Projected authorizations	Authorizations core area	MOS-3 Grade Sex	Described in Section 3.2
MOS feeder patterns	AR 611-201	MOS-3 Grade	See Figure 3.3.5
SGA guidance	AR 611-201	MOS-3 Grade	See Figure 3.4.6
EPMS policies	AR 600-200	As required	
MOS/Grade distributions	EPMS Task Force	MOS-3 Grade	See Table 3.2.5

- Generating the objective force to include years-of-service and sex detail. This category is, essentially, a process accomplished before inventory projections begin. The objective force produced will define the desired inventory used in the projection of the inventory and the generation of the functional area programs.
- Generating over/short information. This category is part of the inventory projection process; the projected inventories will be compared to the pregenerated objective force to identify deviations (over/short) between the two.

Since the generation of the over/short information is a straightforward operation based on data developed elsewhere, the bulk of the processing required in this functional area will be for the generation of the objective force. Specific factors which should be considered when generating the objective force include:

- Alignment with authorizations. The basic definition of force objectives, as found in the Enlisted Force Management Plan (EFMP), is to provide general guidance. Generation of the objective force must use this general guidance within the constraining framework of the approved, budgeted authorizations.
- Disaggregation of total-Army-level data. EPMD requirements are for MOS-3 detail. The objective force must, therefore, be developed so as to provide the required detail. Significant factors which would impact this include:
 - Time-in-service and time-in-grade requirements for promotions
 - Retention in the MOS
 - Feeder patterns
 - EPMS/Grade distribution guidelines
 - EFMP year-group goals
 - MOS/Grade authorizations
 - Grade substitutability

- Male/female objectives. This factor is necessitated by the need to take positive actions within the Army's enlisted force to assure equal opportunity for females in those skills for which they are trained. Available options in the Army are, of course, restricted because of the existing number and qualifications of women available--in terms of both skill level and years of service. The establishment of separate objectives for women, however, will serve to identify those areas where actions need to be taken.

3.4.5 Mobilization Considerations

In the event of mobilization, there is the high probability that the information requirements for Force Management will disappear, particularly in the case of full or total mobilization. Since the emphasis during such a time would be assuring that the Army maintain its combat readiness by meeting its authorized strength, year-group management would become of secondary importance at best.

3.5 TRAINING

3.5.1 General

The purpose of this functional area is to provide EPMD with the projected information needed to develop and manage the input to enlisted training programs. These forecasts provide information for planning, programming, and control of EPMD management activities related to entry-level training and advanced-level training.

3.5.1.1 Uses of Projected Training Information

Specific uses of the forecasts from this area include input of training requirements to:

- The Army Training Requirements and Resource System (ATRRS)
- The Recruit Quota System (REQUEST)
- RETAIN
- The assignment of uncommitted accessions to initial-entry training

3.5.1.2 Categories of Training

To facilitate the discussion of training forecast requirements, the types of training have been divided into three general categories:

- Skill Training. This category encompasses training which leads to the acquisition of a new skill--either a new MOS (entry-level training), improving skills (advanced-level training), or specialization within a given MOS (SQI, ASI, or language training).
- Leadership Training. This category concerns training intended to improve the soldier's ability to perform at a higher grade. Although training requirements are calculated by MOS, as a rule the training is not related to a specific MOS.
- Functional Training. This category includes training designed to enhance individual capabilities. Such training may be related to an MOS but does not result in award of an MOS, ASI, or SQI.

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ANALYSIS AND EVALUATION OF PERSONNEL MODELING REQUIREMENTS TO S--ETC(U)
SEP 79 G N BROWN , P J NEILSEN , P W THOMSON DAA639-78-C-0154
GRC-1072-02-79-CR NL

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3.5.1.3 EPMD Responsibilities

Operationally, EPMD is charged with managing the forecasting and selection of training base attendees (which include entry-level training and some advanced-level training), all ASI and language training, and selected SQI training. In the other two categories (leadership and functional training), EPMD has a mixed degree of responsibility which is less clear cut; therefore, these are discussed separately in Section 3.5.6.

3.5.2 Functional Information Requirements

3.5.2.1 Management Uses

Overview of Requirement. The information needed by EPMD managers in this functional area is the projection of training requirements to meet the Army's needs for trained personnel, planned input to training, and the expected output of trained personnel to the inventory. From the former is developed the training program for the Army. This training program is then used to manage the assignment of individuals to training. The output of trained individuals must then be forecast. Table 3.5.1 provides a summary of the information requirements for management use; Figure 3.5.1 shows a sample format for this requirement.

Ideally, the output of trained personnel will match the time-phased difference between authorizations and inventory; however, changing authorizations, limits on training capacity, continual personnel turbulence, and recruiting difficulties complicate the problem. To better manage the Training functional area, the information needed by management includes:

- Desired training plan or training requirement
- Training program to be implemented
- Expected trained output

TABLE 3.5.1
TRAINING FUNCTIONAL INFORMATION REQUIREMENTS
FOR MANAGEMENT USE

<u>Requirement</u>	<u>Detail</u>	<u>Timeliness</u>
Entry-Level Training	MOS-3 Sex	Generate quarterly for current plus 3 FY
Advanced-Level Training	MOS-3 Grade Sex	Generate quarterly for current plus 3 FY
ASI Training	MOS-3 ASI	Generate quarterly for current plus 3 FY
SQI Training	MOS-3 SQI	Generate quarterly for current plus 3 FY
Language Training	MOS-3 LIC	Generate annually for current plus 2 FY

NOTE: The same level of detail is required for both desired training (training requirement) and expected training (projected output from training).

MOS	Current FY		FY + 1		FY + 2	FY + 3
	Desired	Expected	Desired	Expected		
MOS-3 +	Total (Female) +	Total (Female) +	Total (Female) +	Total (Female) +

Figure 3.5.1. Entry-Level Training Output Format

Types of Skill Training. As stated earlier, the Skill Training category encompasses training leading to a new skill. This category is further subdivided, depending on the level of training to be given, the differing characteristics identifying the skills in the inventory, and authorizations source files. The functional information requirements for each are much the same. The types of skill training and their distinguishing characteristics are as follows:

- Entry-level training refers to training to teach a new skill. Included are entry-level AIT courses, one station unit training (OSUT), and any other training process resulting in the award of an entry-level MOS.
- Basic Combat Training (BCT) is considered part of the training base even though it is not skill producing. It is required for all NPS personnel upon entry to active duty with the exception of those attending OSUT.
- Advanced-level training includes training which results in qualifying for higher skill level and grade. Examples of the MOSs currently requiring advanced skill-level training are listed in Table 3.5.2; the relationship of skill level to grade is shown in Table 3.5.3.
- ASI training provides individuals already qualified in an MOS with training to perform specialized duties within that MOS. The ASI is a 2-position code; an extract of the list of ASIs in AR 611-201 is shown in Table 3.5.4.
- SQI identifies skills which are not related to a particular MOS. The SQI code is the fifth character of the MOS code. There are currently 25 SQIs (defined in Chapter 5 of AR 611-201.) Only six, however, require formal forecasting by EPMD (P--parachutist, S--special forces, V--ranger parachutist, W--pathfinder, C--nuclear biological chemical, and J--scuba).^{*} The others either do not have requirements

^{*} Although the training for these SQI does not vary by MOS, the training requirement is MOS related. The unique nature of these SQI requires special consideration in the development of training requirements.

TABLE 3.5.2
EXAMPLE OF MOSs CURRENTLY REQUIRING ADVANCED SKILL LEVEL TRAINING

<u>CMF</u>	<u>MOS</u>	<u>GRADE</u>	<u>CMF</u>	<u>MOS</u>	<u>GRADE</u>
27	21G2	5	91	91R2	5
29	35H3	6		92B3	6
33	33S3	6	98	98C2	5
51	51R2	5		98G2	5
55	55D2	5		98G3	6
91	42D2	5		98J2	5
	91C3	6		05D2	5
	91E2	5		05G2	5
	91E3	6		05G3	6
				05H2	5
				05H3	6
				05K2	5

TABLE 3.5.3
RELATIONSHIP OF SKILL LEVEL (4th psn of MOS) TO GRADE

<u>Skill Level</u>	<u>Grade</u>
1	E-1, E-2, E-3, E-4
2	E-5
3	E-6
4	E-7
5	E-8, E-9

TABLE 3.5.4

EXAMPLES OF ASI CODE

1 January 1979

C 11, AR 611-201

Additional Skill Identifiers			MOS	Training Course Leading to Award of ASI	
Code	Title	Description		Course No.	Title
		without error for a minimum period of 2 consecutive minutes out of 3.			
J8	Photojournalist -----	For individuals graduating from the DINFOS Photojournalism Course or graduates of the USN Advanced Photojournalism course at Syracuse University, and/or those selected by a DA Board.	84B, 71Q	570-ASIJ8	Photojournalism.
★K2	Senior Non-Morse Analyst.	Use of specialized techniques and equipment in the analysis of selected Non-Morse Signal data.	05K	US Navy A-2320058	Senior Non-Morse Analyst.
K3	Electronic Countermeasures Operations.	Operation of electronic countermeasures equipment and devices	05H, 05K, 98J, 98G	233-F2	Electronics Countermeasures.
K4	Mobile Floating Assault Bridge/Ferry (MAB).	Organizational and support maintenance on the Mobile Floating Assault Bridge/Ferry.	62B	OJT and Extension Course.	Mobile Floating Assault Bridge/Ferry Maint.
K5	Weather Forecaster ----	Provides weather forecasting for meteorological teams having a forecasting requirement.	93E	USAF C3AAB25-170	Weather Technician.
K6	Senior Non-Morse Collector/Controller	To be awarded to individuals who perform supervisory technical controller, mission controller, and mission coordinator duties associated with advanced Non-Morse Collection Systems.	05K	US Navy A-231-0048	Senior Non-Morse Collector/Operator
K7	Finance Data Analysis.	Use of forms, transaction entries, verification procedures, and standardized codes for information processed in the Army's finance and accounting system.	73C	OJT	
K8	AN/FTC-31/SEVAC ----	Organizational, direct support, and general support of the automatic dial central office (AN/FTC-31) and the Secure Voice Access Console (SEVAC).	36H, 36L	622-F15	Secure Voice Access System Repair.

pertinent to training (e.g., H--instructor), are codes more than qualifications (e.g., L--linguist), are awarded by other than training (e.g., M--first sergeant), or have requirements too small for formal forecasting techniques (e.g., K--logistics NCO).

- Language training is conducted under DOD direction. The current forecasting of requirements is accomplished in a highly controlled environment. While language forecasting meets the basic characteristics of skill training and might be suitable to automated forecasting techniques, the relatively small training requirement and the cost involved appear to warrant continuation of the current intensive management practices.

Desired Training Requirement. The desired trained personnel requirement represents the optimum mix of training necessary to fulfill requirements from the current inventory and near-term course production status. The requirement is an unconstrained figure reflecting the true requirements for each skill being forecast. This figure will have little impact on the near-term content of course offerings but will aid management in determining the longer-term training program. The desired program does consider forecasts of trained personnel from the Reclassifications and Accessions functional areas.

Expected Trained Output. The expected trained output is a projection of the actual number expected to be trained and enter the trained strength of the Army during a given time period. This figure reflects the actual training program projections, recruiting (or accession) limitations, and any other considerations which will tend to constrain the outcome of the forecast. It is intended to be a reflection of what is actually expected to happen within the framework of the Army's policies and procurement capabilities. The comparison of the unconstrained training requirements and expected training output will then demonstrate the effect of training and accession constraints.

Development of the Training Program. The actual training program developed is a management function in which the expected trained additions are brought more into line with the desired objectives. This may involve changes in policy or training capacity or the addition of monetary incentives. The development process is done in conjunction with ODCSPER, ODCSOPS, and TRADOC. The results of this processing are used as input to ATRRS, REQUEST, and (through REQUEST) RETAIN.

Timing and Frequency. The training program is input to ATRRS on a quarterly basis with projections for the current plus 3 fiscal years. Subsequently, TRADOC establishes the training course schedule, and this detail is input to REQUEST through the ARPRINT on a quarterly basis.

3.5.2.2 Projection Uses

The number to be trained is input to the Accessions functional area and the Inventory core area. The number to be trained is used by the Accessions functional area to determine the number of accessions required. The expected training output also will help define the form of the projected inventory. Table 3.5.5 lists the detail of the requirements for projection use from the Training functional area.

TABLE 3.5.5
TRAINING FUNCTIONAL INFORMATION REQUIREMENTS
FOR PROJECTION USE

<u>Requirement</u>	<u>Detail</u>	<u>Timeliness</u>
Accessions	MOS-3 Sex Grade*	Generate monthly ⁺ for current plus 3 FY
Inventory	MOS-3 Sex Grade*	Generate monthly ⁺ for current plus 3 FY

*For advanced-level training

⁺ Although training forecasts for management uses do not require monthly update, the training data must be updated monthly to meet the forecasting requirements of other uses of accessions and inventory data.

3.5.3 Relationships

Figure 3.5.2 shows a simplistic picture of the relationships among the Training functional area and other areas. Some of the relationships are straightforward, although they become more complex in succeeding iterations of forecasts. Those areas which directly impact Training are:

- Authorizations, which provides current and projected authorizations data
- Inventory, which provides current and projected inventory data
- Reclassifications, which provides the reclassification data for both trained and untrained groups
- Reenlistments, which provides data on reenlistments requiring retraining
- Accessions, which provides data on projected accessions

Those areas which are impacted by Training forecasts are:

- Inventory, which will use the forecasts as it projects the inventory to the next point in time
- Accessions, by identifying that portion of the force requirements that will be met by new accessions to the Army
- Reclassifications, by identifying the training requirements for each skill
- Reenlistments, by identifying the training requirements for each skill

3.5.4 Input and Processing

This section defines, at a conceptual level, the input and processing that is needed to fulfill the functional information requirements. Figure 3.5.3 depicts the input and processing for the Training functional area.

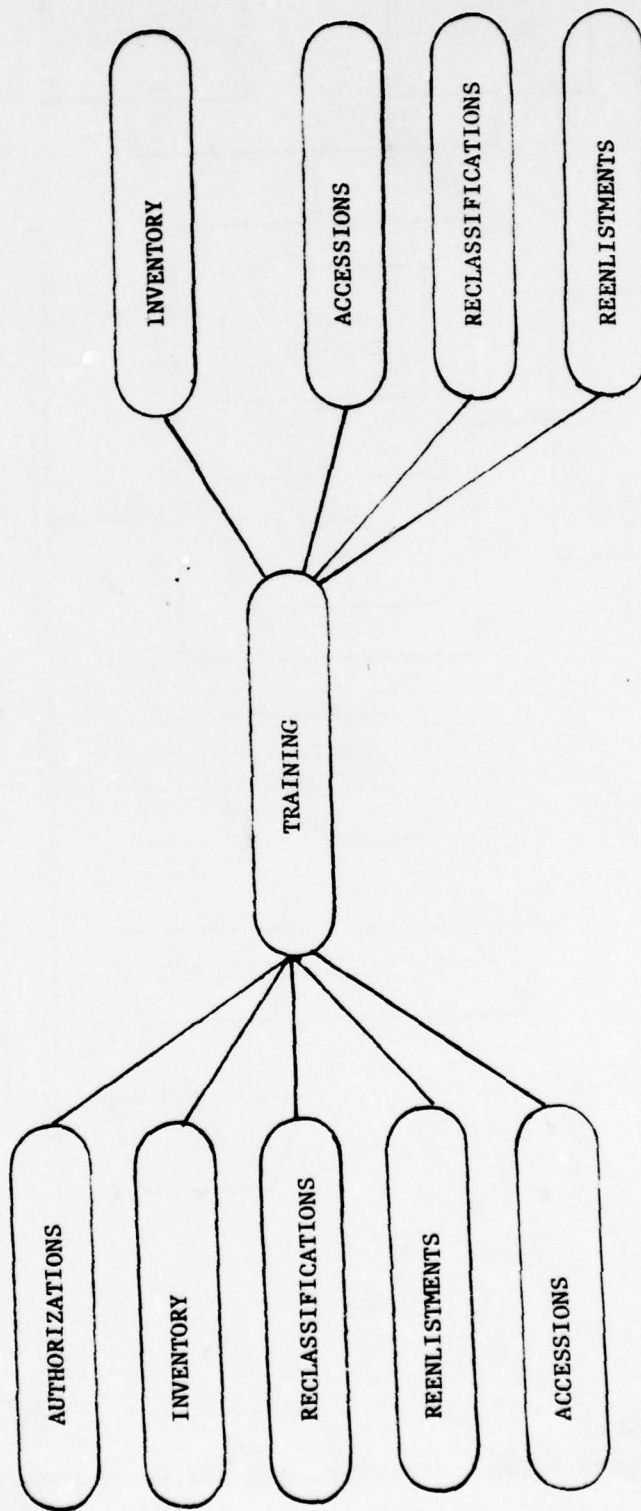


Figure 3.5.2. Training Relationships

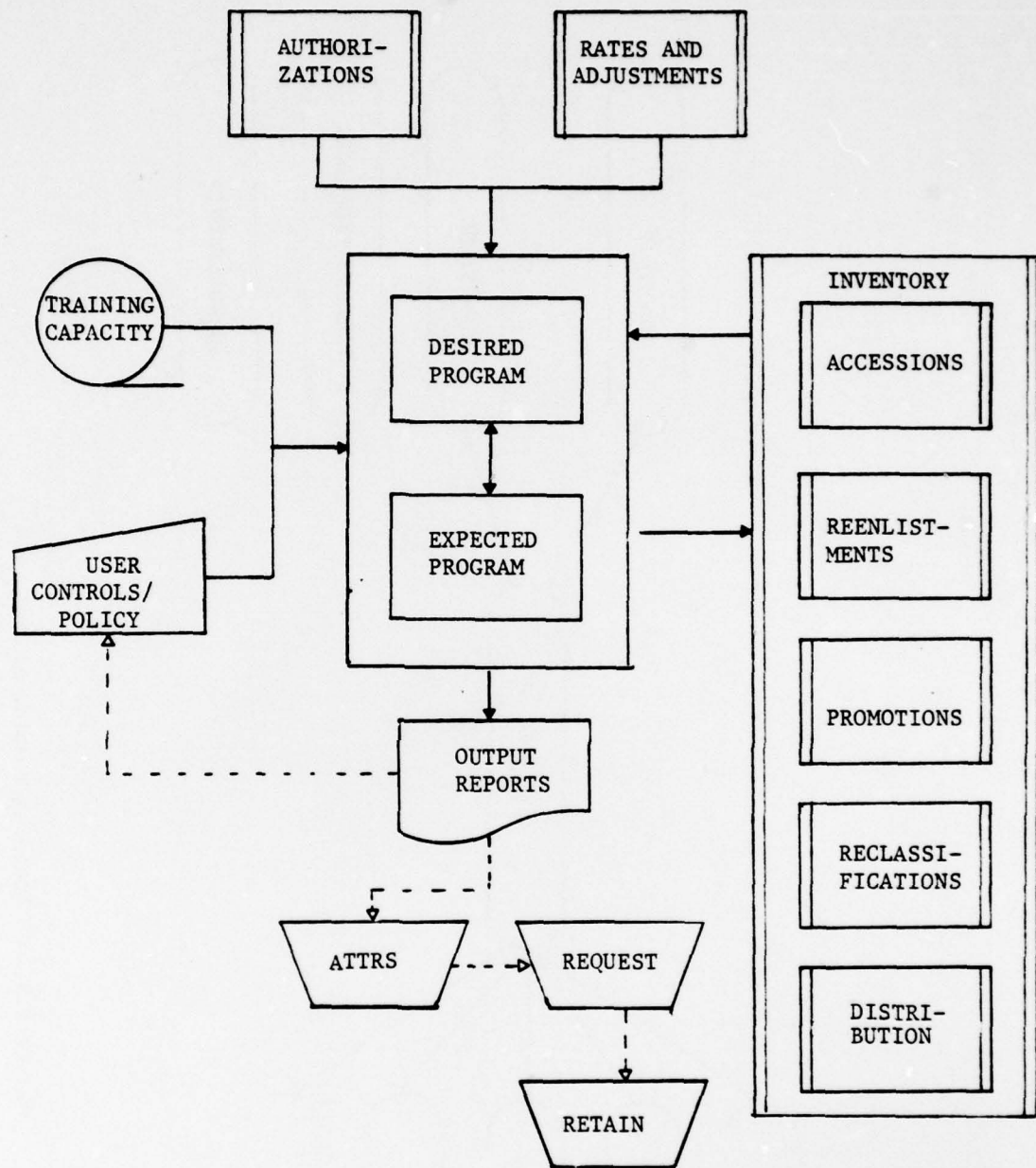


Figure 3.5.3. Training Input and Processing

3.5.4.1 Input

Projected Authorizations. These data, described in Section 3.2, should be input from the Authorizations core area detailed by:

- MOS-3
- Grade
- Sex
- ASI
- SQI
- Command

Current and Projected Inventory. These data should be input from the Inventory core area, described in Section 3.3, detailed by:

- MOS-3
- Grade
- Sex
- ASI
- SQI
- Command

Accessions. These data should be input from the Accessions functional area, described in Section 3.6, and will include forecasts of accessions, detailed by:

- MOS-3
- Grade
- Sex
- PS or NPS
- Trained or Untrained

Reclassifications. These data should be input from the Reclassifications functional area, described in Section 3.9, and will include forecasts of trained reclassifications, detailed by:

- MOS-3
- Grade
- Sex
- Trained or Untrained

Reenlistments. These data should be input from the Reenlistments functional area, described in Section 3.7, and will include forecast reenlistments, detailed by:

- MOS-3
- Grade
- With or without reclassification
- With or without retraining
- Sex

Training Capacity. These data are input from ATRRS and reflect information regarding:

- Course start and end date or course length
- Course capacity
- Attrition rate

Current Policy. Information regarding current Army policy will have to be quantified and input. Policies which will impact upon training forecasting include:

- Proportion of training spaces to be allotted to reclassification actions by MOS
- High enlistment appeal (overfill)
- Monetary incentives encouraging accessions
- Training course capacity and frequency

Table 3.5.6 provides a summary of the input requirements for the Training functional area.

3.5.4.2 Processing

The processing of the Training functional area should perform two major tasks: develop the desired training requirements and compute the expected training requirements. The differences between these values will highlight to management those areas requiring management action to align expected results more closely with desired results.

Desired Training Plan. In general, the desired training plan can be computed by determining the difference between authorizations and inventory and deducting the forecasts of trained additions to each MOS from reclassifications and accessions (trained PS and "Stripes for Skills"). The result is the training output requirement. The training input requirement is determined by increasing the output requirements to account for attrition rates and course lengths.

TABLE 3.5.6
TRAINING--SUMMARY OF INPUT

<u>Input</u>	<u>Source</u>	<u>Detail</u>	<u>Comments</u>
Projected Authorizations	Authorizations (Section 3.2)	MOS-3 Grade Sex ASI SQI LIC Command	Transients, Holdees, and Student overhead accounts are included in authorizations
Inventory	Inventory (Section 3.3)	MOS-3 Grade Sex ASI SQI Command	
Accessions	Accessions (Section 3.6)	MOS-3 Grade Sex PS or NPS Trained or Untrained	Forecast of trained PS accessions and CAS or "Stripes for Skills" accessions
Reclassifications	Reclassifications (Section 3.9)	MOS-3 Grade Sex Trained or Untrained	Forecast of trained reclassifications
Reenlistments	Reenlistments (Section 3.7)	MOS-3 Grade Sex With/Without Reclassification With/Without Retraining	
Course Capacity	ATRRS	Course capacity Course length Attrition rate	
Policy	EPMD Managers	As required	

Computations for categories of skill training must consider:

- Entry-level training. The training requirements is the cumulative total of the inventory shortages of all MOSs fed by each entry-level MOS. Where more than one entry MOS feeds a subsequent MOS, shortages in the subsequent MOS will be distributed among the feeder-entry MOSs.
- Advanced-level training. The training requirement is the difference between the inventory and authorizations of MOS-3 and grade combinations specified in Table 3.5.1.
- BCT. The BCT output requirement is the NPS input to entry-level training less OSUT.
- ASI and SQI. These skills require special management considerations to include inventory objectives which are different from authorizations (normally greater). Additionally, inventory projections must consider the voluntary nature of some SQI.

Training Program. The training program is developed by EPMD and TRADOC using the desired training requirements (constrained by expected accessions) as the start point. This training program will consider training base capacities and course start dates.

Expected Trained Output. The expected output is computed in much the same manner as the desired plan, except that the calculations are constrained by budget limitations, such as parachute or other hazardous duty pays, course capacities and training start dates. Forecasts beyond the budget fiscal year assume that the expected training output will be equal to the training requirement.

Other Considerations. The elapsed time between start and completion of training will be a major concern in converting a training requirement into training input requirements. Figure 3.5.4 illustrates the sequence of events to be accommodated. A period of time elapses while an individual takes basic and/or entry-level training, aside from the time that may elapse if the individual enlists under the Delayed Entry Program (DEP).

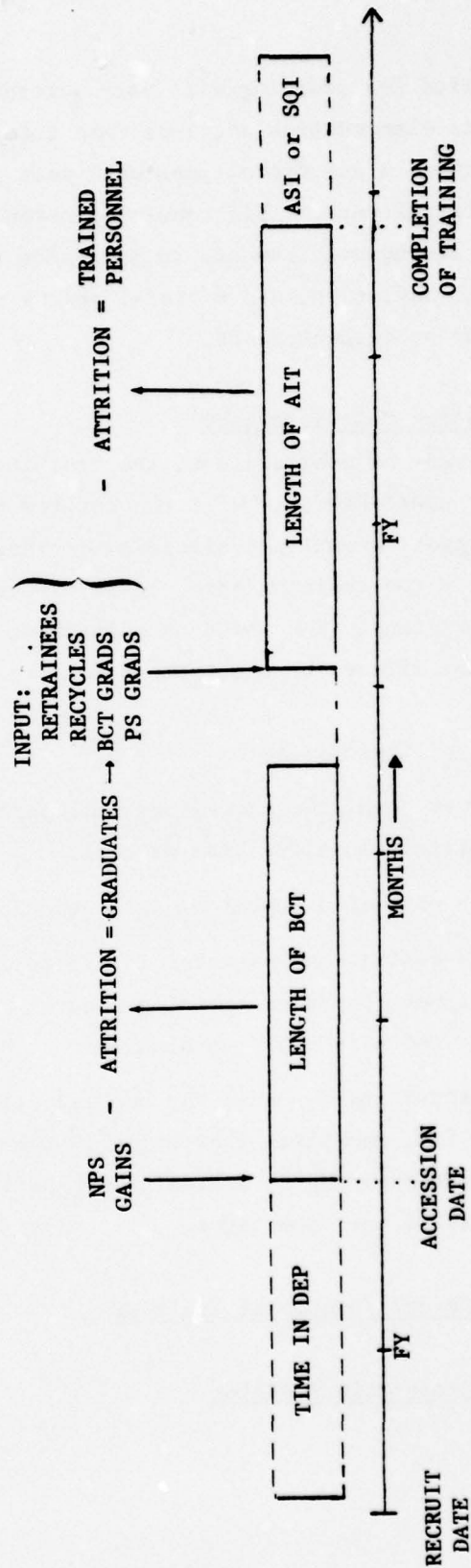


Figure 3.5.4. Elapsed Time: Recruiting to Completion of Training

The time required for training will vary according to MOS. Difficulties arise when this elapsed time overlaps into another fiscal year, i.e., when an accession in one fiscal year will meet a trained requirement in a subsequent fiscal year. This condition makes it invalid to equate fiscal year training requirements to accession requirements. Processing techniques will have to relate a fiscal year's accessions to training requirements in subsequent years.

3.5.5 Mobilization Considerations

In the event of mobilization, the training forecasting process will remain largely unaffected, as will the desired output. The operational side will, however, experience significant change from current procedures. Major changes in the training base can be expected with possible addition of training divisions. The means of satisfying this and other procedural aspects does not affect the requirement for trained personnel.

Examples of impacts are:

- Fewer committed accessions will permit flexibility in the initial classification process.
- The potential number of CAS accessions will increase.
- The desired and expected forecasts should be more closely aligned, provided training capacity and authorization of new units is well coordinated.
- Reserve and NG units may need additional trained personnel to fill shortages that exist in some units. RCPAC places first priority in assigning IRR personnel to meet these reserve unit shortages.

3.5.6 Leadership and Functional Training

3.5.6.1 Leadership Training

General. Courses designed to teach NCOs leadership and management skills have been grouped in the general category of Leadership Training. These courses compose the Noncommissioned Officer Education System (NCOES). The various levels of courses offered are:

- Primary NCO Course (PNCOC). This training is for E4s who are prospects for promotion to E5. There are two types of courses offered at this level: PNCOC for combat (PNCOC/CA) and primary leadership course (PLC). PNCOC/CA is for the 15 combat arms MOSs only; PLC is for all other MOSs. Table 3.5.7 lists those MOSs currently identified as combat arms MOSs.
- Basic NCO Course (BNCOC). This training is for E5s and is also divided into two groups: BNCOC for combat arms (BNCOC/CA) and basic leadership course (BLC).
- Advanced NCO Course (ANCOC). This training is for E6s without regard to MOS.
- Senior NCO Course (SNCOC). This training will be for E7s without regard to MOS. The curriculum for this training is still under development.
- US Army Sergeants Major Academy (USASMA). This training is for E8s without regard to MOS.

TABLE 3.5.7
COMBAT ARMS MOSs

11B	13F	19H
11C	16P	19E
12B	16R	19F
13B	19D	19J
13E	19G	19Z

With the exception of USASMA, a significant factor for each training requirement is the number of promotions in the MOSs and grades under consideration. (The USASMA training is set at 400 a year.)

Information Requirement. The functional information requirement is to determine the training requirements for each of the courses (with the exception of the USASMA). Candidates for the Advanced NCO Course are selected by a centralized selection board. Course quotas for the BNCOC and the PNCOC are distributed geographically to major commands, based on the number of calculated eligibles.

Policy Does Not Specifically Delineate Training Requirement. The stated purpose of the leadership courses is to teach leadership and managerial skills to enable an individual to better perform the duties of a higher grade. Under current policy, however, leadership course completion is not a requirement for promotion as individuals may be given constructive credit in lieu of attendance. Current policies do not support specific delineation of training requirements in this area. Accordingly, the best that can be done, given current leadership training policies, is to develop broad approximations of course attendance based on historical experience and expected promotions.

3.5.6.2 Functional Training

Information Requirement. The forecasting requirement for functional training is the same as for skill and leadership training--to forecast the number of soldiers who need to be trained in each of the offered courses. In general, the lack of centrally managed data and the resulting inability to develop algorithmic procedures necessitates continuation of existing procedures as defined in Annex B.9 of the report of Tasks 2 and 3 of this contract.

Methodology. GRC feels that the current methodology of soliciting commands for their input to determine functional training is, in general, inefficient and time consuming. A thorough review of all such training

should be conducted with the intent being the establishment of some type of formal procedures by which the training requirement could be determined.

Enrollment in each course should have some basis by which the training requirement can be calculated, particularly those courses related to skills intensively managed by EPMD and skills of careerists who are centrally managed by EPMD. These procedures might require, at a minimum, the establishment of a data file to identify soldiers who have completed training and the development or identification of a means to determine when the training is required.

3.6 ACCESSIONS

3.6.1 General

The information needed in the Accessions functional area provides EPMD with the number and distribution of accessions necessary to meet overall force level and manning requirements. The accessions program provides the basis for managing the recruiting objectives via the REQUEST system.

3.6.2 Functional Information Requirements

3.6.2.1 Management Uses

Information in this functional area provides EPMD managers with projections from which they can develop and monitor the accessions program. This program should provide the recruiting objectives at the MOS and command level of detail for both prior and non-prior-service accessions. These accessions must agree in total with the AAMMP.

Table 3.6.1 provides a summary of the accession functional information requirements for management use. Figure 3.6.1 provides formats by which this information might be presented.

The accessions program is derived by taking projected gains from the AAMMP and distributing those to meet the training requirements discussed in the Training functional area (Section 3.5). Command/location data must then be added to provide information to manage input through the REQUEST system.

The expected accessions program is also derived from the projected gains in the AAMMP. The gains, however, are distributed to reflect the actual and projected recruiting results, specifically recognizing that enlistments in one MOS may fall short of requirements while exceeding requirements in another MOS.

TABLE 3.6.1
ACCESSION FUNCTIONAL INFORMATION REQUIREMENTS
FOR MANAGEMENT USE

<u>REQUIREMENT</u>	<u>DETAIL</u>	<u>TIMELINESS</u>
PS Gains	MOS-3 YOS Sex Trained/Untrained	Generate monthly for current FY plus 3 FY
NPS Gains	MOS-3 Sex Trained/Untrained	Generate monthly for current FY plus 3 FY
Command Commitments	MOS-3 Sex	Generate monthly for current FY plus 3 FY

ANNUAL ACCESSIONS

	CURRENT FY		FY +1		...	FY +3
	DESIRED	EXPECTED	DESIRED	EXPECTED		
MOS-3 Objective	TOT (F)	TOT (F)	TOT (F)	TOT (F)
PS	+	+	+	+		
NPS						
Trained						
Untrained						
Command (list)						
...						
TOTAL						
Objective						
PS						
Trained						
Untrained						
NPS						
Trained						
Untrained						
Command (list)						

ACCESSIONS BY QUARTER

	CURRENT FY				FY +1
	Quarter 1		Quarter 2		
	DESIRED	EXPECTED	DESIRED	EXPECTED	
	TOT (F)	TOT (F)	TOT (F)	TOT (F)	
MOS-3					
PS					
NPS					
Trained					
Untrained					
Command (list)					
...					
TOTAL					
PS					
NPS					
Trained					
Untrained					
Command (list)					

ACCESSIONS BY MONTH

	CURRENT FY							
	Quarter 1				Quarter 2			
	October		November		December		January	
	DESIRED	EXPECTED	DESIRED	EXPECTED	DESIRED	EXPECTED	DESIRED	EXPECTED
MOS-3	TOT	TOT	+					
F	TOT	TOT						
PS	+	+						
F								
NPS								
F								
MOS-3								
F								
PS								
...								
+								

Figure 3.6.1. Accessions Output Formats

The specific objective of the Accessions functional area is to determine the accessions required to complement in-service resources so that the Army's trained-strength targets will be met. The processing sequence which generates these accession requirements will be such that both the PS and NPS programs will be generated from the same sequence. These accessions, once spread to account for seasonal factors, will provide the desired recruiting program.

Probably no other functional area has as much influence on the attainment of force structure or meeting end strengths as does the Accessions functional area. In today's environment, recruiting short-fall will adversely affect the other areas such that their requirements will not be met. Failure to recruit will result in failure to train, which then results in distribution resource short fall.

3.6.2.2 Projection Uses

Accession projections are a vital component of the projections of expected training and the projected inventory. Types of information required for projection uses in the Inventory core area and Training functional area are the same as those required for management use.

3.6.3 Relationships

Figure 3.6.2 shows a simplistic view of the relationship between the Accessions functional area and other areas. Those areas which directly impact accessions are:

- Training, which provides the requirement for input into training including allowances for attrition. Additionally, the input requirement will specify whether the accessions are initially to attend BCT or OSUT and the command commitments available.
- Active Army Military Manpower Program (AAMMP); this program provides the total-Army enlistment program by month.

Table 3.6.2 provides a summary of input to the Accessions functional area.

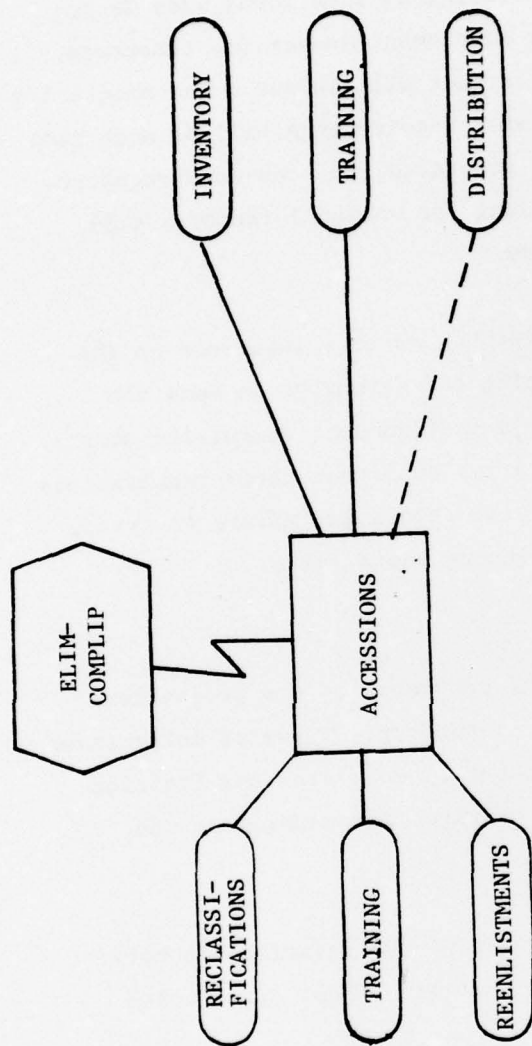


Figure 3.6.2. Accessions Relationships

TABLE 3.6.2
ACCESSIONS--SUMMARY OF INPUT

INPUT	SOURCE	DETAIL	COMMENTS
Objective Force	Force Management (Section 3.4)	MOS-3 YOS Grade Sex	Objective Force numbers used to determine PS needs by YOS
Training	Training (Section 3.5)	MOS-3 Sex	Training to meet authorized manning level
Enlistment Program	AAMMP	PS & NPS	Annual PS & NPS objectives Female objectives Monthly distribution Draftees (mobilization mode)
Reenlistments	Reenlistments (Section 3.7)	MOS-3 YOS Grade Sex	Reenlistments with reclassifications and training required are input to the Accessions area.
Reclassification	Reclassifications (Section 3.9)	MOS-3 Grade Sex YOS	Reclassifications with training required are input to the Accessions area.
Current Policy	EPMD Managers	As required	As required

Those areas which are impacted by Accessions are:

- Inventory, which will use the accession forecasts to project the inventory to the next point in time.
- Training, by identifying the forecast number of accessions to the Army.
- Distribution, which is directly influenced by the command quotas placed in the REQUEST system

3.6.4 Input and Processing

This section defines, at a conceptual level, the input and processing that is needed to fulfill the functional information requirements. Figure 3.6.3 depicts the input and processing for the accessions functional area.

3.6.4.1 Input

Training. The Training functional area, described in Section 3.5, provides the training input required, detailed by:

- MOS-3
- Sex

Active Army Military Manpower Program (AAMMP). This program provides the official, total-Army program, by month, with which accessions must be consistent.

Objective Force. The Objective Force requirements are described in the Force Management functional area (Section 3.4) and are detailed by:

- MOS-3
- Grade
- YOS
- Sex

Reenlistments. The Reenlistments functional area described in Section 3.7 provides the number of reenlistments with retraining required by:

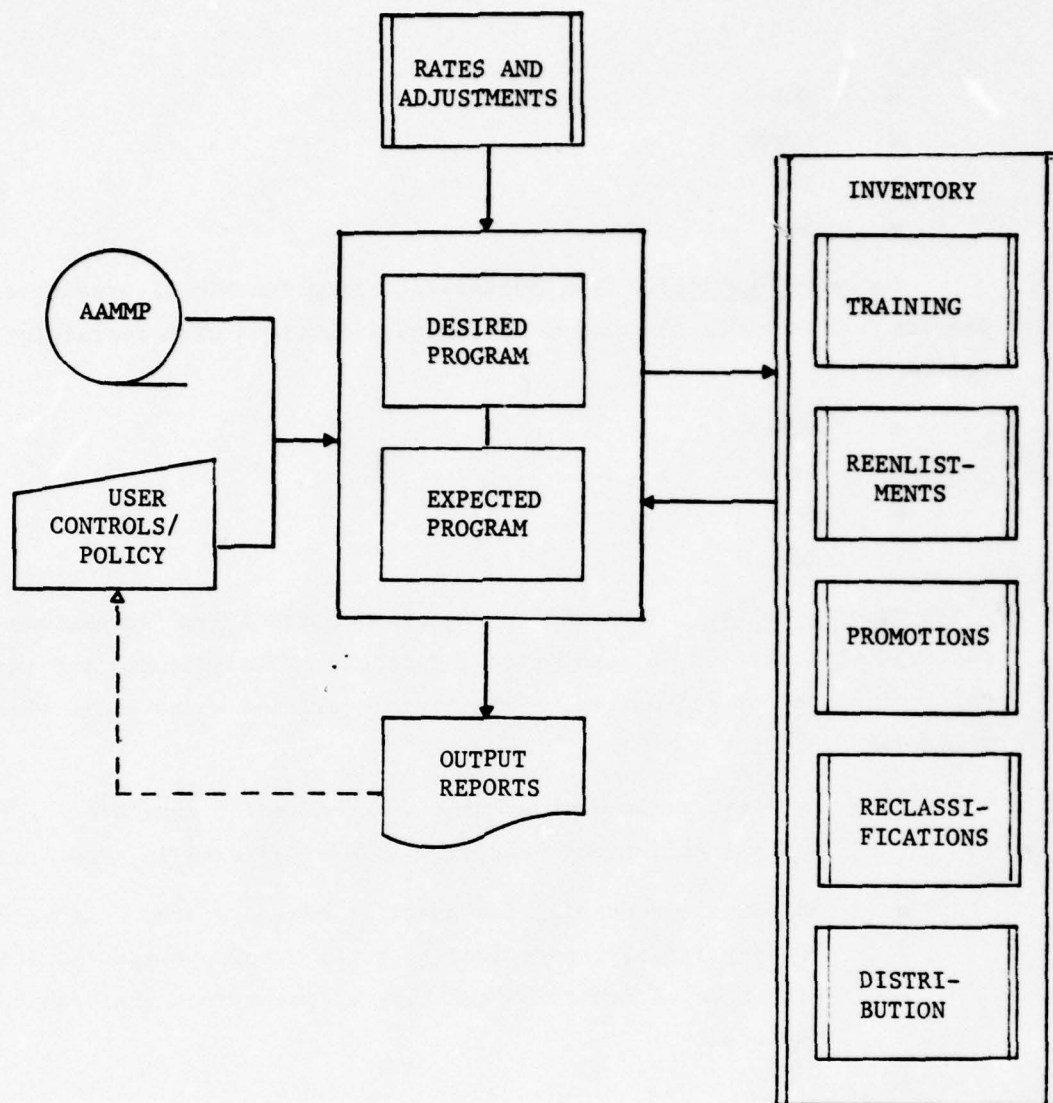


Figure 3.6.3. Accessions Input and Processing

- MOS-3
- Grade
- YOS
- Sex

Reclassifications. The Reclassifications functional area described in Section 3.9 provides the number of reclassifications with retraining required by:

- MOS-3
- Grade
- Sex
- YOS

Current Policy. Information regarding current Army accessions policies will have to be quantified and input. This includes the various enlistment options authorized. Examples of policies which would affect accessions include:

- Two-year enlistments. Continuation and/or expansion of the 2-year initial enlistment program will have effects in many areas.
- Enlistment bonuses. The specific makeup of the enlistment bonus program, constrained in total by budget specifications, will have an impact on the type of accessions that can be expected.

3.6.4.2 Processing

The processing for the Accessions functional area can be conceptualized as:

- Developing the desired accession program.
- Projecting the expected accessions.
- Comparing these two.

Both the desired and expected results are a function of all functional inputs being processed in the projected inventory.

Desired Accessions. The desired accession program should be developed to represent those accessions which, if achieved, would meet the Army's requirement for trained personnel. Specific factors which should be considered include:

- training requirements
- reclassifications, specifically that portion of the reclassifying personnel who will require retraining
- reenlistments, again those personnel who will require retraining
- anticipated PS versus NPS distribution

Expected Accessions. The expected accessions are the realistic projections of actual accession by MOS given current or projected Army policies and training spaces available as reflected in REQUEST. The grand total of calculated accessions at the level of detail used by EPMD must also be consistent with the approved total-Army program.

3.6.5 Mobilization Considerations

Under mobilization conditions there will be some important differences in the content and management of the accessions function. If a draft is instituted, the NPS accessions become demand-limited rather than supply-limited, with the level of volunteer accessions to some extent a function of the number drafted. The number of accessions will continue to be defined in the AAMMP.

Presumably, most accessions will be derived from the draft with a comparatively small portion of volunteers and enlistment commitments. The assignment to training process (or initial classification) then becomes one of determining the "best" assignment based on the criteria for assignment to training and individual qualifications.

The IRR is a source of trained but unassigned accessions which become available under some mobilization conditions. Current priorities call for IRR personnel to be assigned to fill vacancies in reserve units. The remainder will be made available to the Active Army. A forecast of

availables prepared by RCPAC should be provided by RCPAC as either a forecast of probable distribution in the event of mobilization or for EPMD to determine optimum distribution. The forecast provided by RCPAC should be accurately factored to realistically predict the number of personnel that will actually report to mobilization assignments. Conceptually, input of IRR personnel will be processed similarly to increased input of prior-service enlistees.

3.7 REENLISTMENTS

3.7.1 General

In the Reenlistments functional area, information is needed to develop and monitor the Army's reenlistment programs at the grade, MOS, years-of-service, and sex level of detail. Specific uses of the data generated in this functional area include:

- Developing reenlistment opportunities to be placed on RETAIN.
- Providing reenlistment data to be used in the projection of the inventory.
- Providing data on number and type of reenlistments to be used in developing forecasts for other functional areas.

3.7.2 Functional Information Requirements

3.7.2.1 Management Uses

Information in this functional area provides EPMD managers with projections from which they can develop and monitor the reenlistment program which best meets the needs of the Army. Table 3.7.1 provides a summary of the Reenlistment functional information requirements for management use.

Program Reports. Standard reports should be generated to provide managers with basic items of information for use in developing and managing the reenlistment program. These items of information include:

- The objective toward which the enlisted force is to be managed.
- The desired reenlistment program which, if followed, would theoretically reach the specified objective.

TABLE 3.7.1
REENLISTMENTS FUNCTIONAL INFORMATION REQUIREMENTS
FOR MANAGEMENT USE

<u>REQUIREMENT</u>	<u>DETAIL</u>	<u>TIMELINESS</u>
First Termers	Term of enlistment* Sex MOS-3	Update quarterly--monthly projections for current and budget years plus quarterly projections for 2 additional planning years
Careerists	Years of service Grade MOS-3 Sex	Update quarterly--monthly projections for current and budget years plus quarterly projections for 2 additional planning years
Exception Information	As above	As required

* Current terms of initial enlistments are 2, 3, 4, 5, and 6 years.

- The expected reenlistments to be achieved, given current policies and programs.

For each of these items, the timing and level of detail will be the same:

- Update quarterly
- Monthly projections for current and budget years, plus quarterly projections for 2 additional planning years.
- Reenlistments of first termers,¹ detailed by:
 - Term of initial enlistment (current Army policy allows 2-, 3-, 4-, 5-, and 6-year enlistments)
 - Sex
 - MOS-3
- Reenlistment of careerists, detailed by:
 - Years of service
 - MOS-3
 - Grade
 - Sex

Figure 3.7.1 provides formats by which this information might be presented.

Exception Reports. In addition to the standard program reports, exception reports are to be produced in this area. These reports should:

- Be produced whenever the deviation between the expected and desired reenlistments exceeds a management-prescribed threshold.

¹For this document, the definition of a first termmer will be in accordance with DA Circular 611-65: personnel of the Active Army serving on an initial enlistment. This differs from the definition contained in AR 600-200: personnel of the Active Army in their first 36 months of active duty. GRC feels that the first definition more accurately describes what is meant by "first termmer" and will provide more accurate projections.

CAREER REENLISTMENTS

CMF XX MOS YYY

YEARS OF SERVICE

<u>E1-E3</u>	<u>1</u>	<u>2</u>	<u>3</u>		<u>20</u>	<u>21-25</u>	<u>26-30</u>
OBJECTIVE	TOT (F)	TOT (F)	TOT (F)	...	TOT (F)	TOT (F)	TOT (F)
DESIRED REENL	↓	↓	↓		↓	↓	↓
EXPECTED REENL							
.							
.							
.							

E9

OBJECTIVE	TOT (F)	TOT (F)	TOT (F)	...	TOT (F)	TOT (F)	TOT (F)
DESIRED REENL	↓	↓	↓		↓	↓	↓
EXPECTED REENL							

FIRST TERMER REENLISTMENTS

CMF XX

TERM OF INITIAL ENLISTMENT

	<u>2 YEAR</u>				<u>6 YEAR</u>		
<u>MOS</u>	<u>OBJ</u>	<u>DES</u>	<u>EXP</u>	...	<u>OBJ</u>	<u>DES</u>	<u>EXP</u>
MOS-3	TOT (F)	TOT (F)	TOF (F)		TOT (F)	TOT (F)	TOT (F)
↓	↓	↓	↓		↓	↓	↓

Figure 3.7.1. Reenlistments Output Formats

- Highlight those specific areas in which the deviations occurred.
- Provide this information at the same level of detail as required for the standard program reports.

3.7.2.2 Projection Uses

Reenlistment projections are one component of the inventory projection process. Categories of reenlistment information required for this projection process are:

- Reenlistments in current MOS (defining personnel requiring neither retraining nor reclassification).
- Reenlistments for personnel who reclassify to a new MOS without requiring retraining.
- Reenlistments for personnel who reclassify to a new MOS and require retraining to do so.

Timing and detail required in these three categories are:

- Update monthly (monthly updates are not required for management use because of the time involved in review of projections and the development and implementation of programs; projection uses, however, require updates to meet Inventory timing requirements).
- Monthly projections for current and budget year; quarterly projections for 2 additional planning years.
- Detailed by:
 - MOS-3
 - Years of service
 - Grade
 - Sex

Table 3.7.2 summarizes the reenlistment functional information requirements for projection use.

TABLE 3.7.2
REENLISTMENTS FUNCTIONAL INFORMATION REQUIREMENTS
FOR PROJECTION USE

<u>REQUIREMENT</u>	<u>DETAIL</u>	<u>TIMELINESS</u>
Reenlistments without reclassification	MOS-3 YOS Grade Sex	Generate monthly; monthly pro- jections for current and budget years plus quarterly projections for 2 additional planning years
Reenlistments with reclassification	MOS-3 YOS Grade Sex Tng*	Generate monthly; monthly pro- jections for current and budget years plus quarterly projections for 2 additional planning years

*Tng distinguishes between those requiring retraining in conjunction with reclassification and those not requiring retraining.

3.7.3 Relationships

Figure 3.7.2 shows a simplistic picture of the relationships between the Reenlistments functional area and other areas. Those areas which directly impact Reenlistments are:

- Force Management, which defines year-group management goals and reenlistment objectives by CMF.
- Authorizations, which define future requirements by grade and MOS.
- Training, which provides the training requirement for each skill.
- Inventory, which provides the projected inventory, assuming other actions (reclassification, accession, etc.) have been appropriately processed.

Additionally, Reenlistment forecasts must be consistent with the AAMMP. Those areas which are impacted by Reenlistment forecasts are:

- Inventory, which will use the forecasts to project the inventory to the next point in time.
- Training and Reclassifications, by identifying that portion of the force requirements that can be met by reenlistments.

3.7.4 Input and Processing

This section defines, at a conceptual level, the input and processing that is needed to fulfill the functional information requirements. Figure 3.7.3 depicts the input and processing for the Reenlistment functional area.

3.7.4.1 Input

Objective Force. The Force Management functional area, described in Section 3.4, provides objective force input at the MOS and Years-of-Service level.

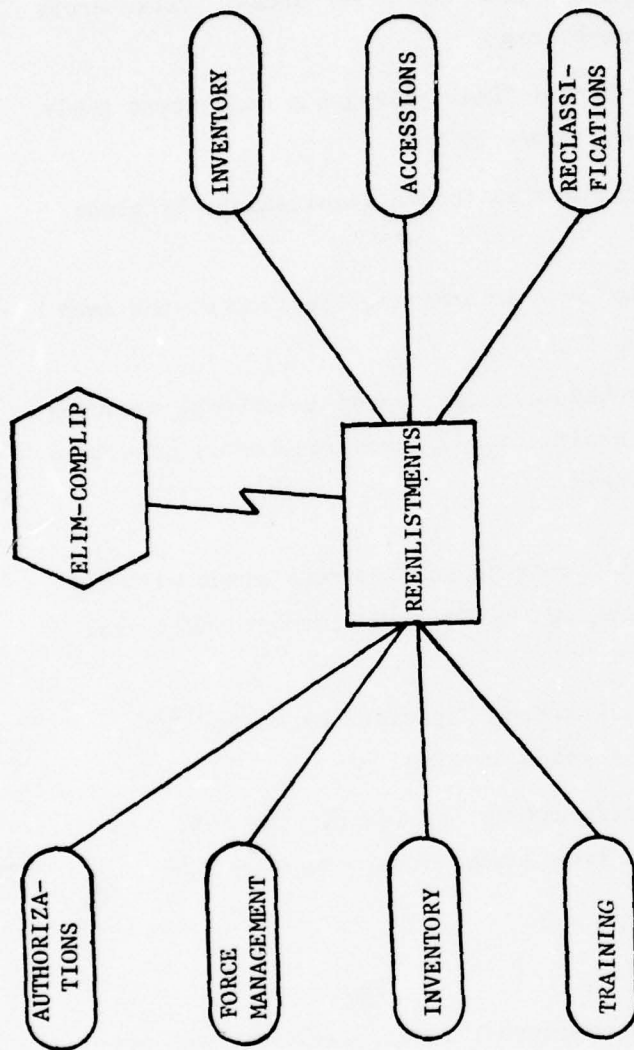


Figure 3.7.2. Reenlistments Relationships

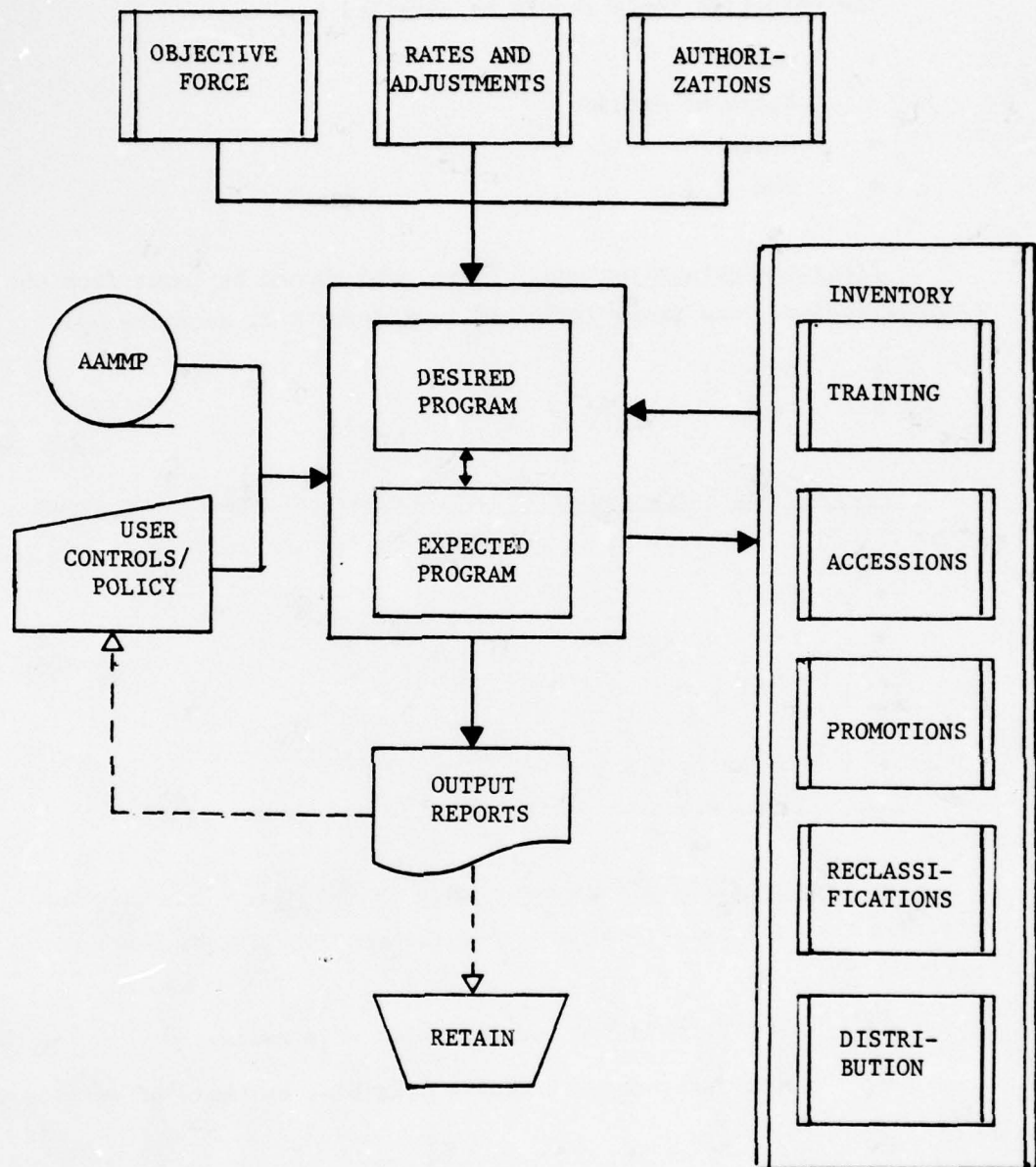


Figure 3.7.3. Reenlistments Input and Processing

The objective force should be detailed by:

- MOS-3
- Years of service
- Grade
- Sex

Projected Authorizations. These data should be input from the Authorizations core area, described in Section 3.2, detailed by:

- MOS-3
- Grade

Current and Projected Inventory. These data should be input from the Inventory core area, described in Section 3.3, detailed by:

- MOS-3
- Years of service
- Grade
- Sex
- Months to ETS
- Term of initial enlistment (first termers only)

Active Army Military Manpower Program (AAMMP). This program provides the official, total-Army reenlistment program by month, detailed by:

- First Termers, by sex and years of service.
- Careerists, not retirement eligible, by years of service up to 20.
- Careerists, retirement eligible.

Although the reports define first termers according to the AR 600-200 definition (first 36 months of duty), the system which produces the reports (ELIM-COMPLIP) uses the Cir 611-65 (initial enlistment) definition for internal processing. The input for this process should, therefore, come from the ELIM-COMPLIP system directly, not from the output reports.

Current Policy. Information regarding current Army policies will have to be quantified and input. Policies which impact upon reenlistment forecasting include:

- Number and length of extensions
- Force-out or stop-loss actions
- Monetary incentives, e.g., reenlistment bonuses
- New or changed reenlistment options

Training. These data define, for each MOS-3, the number of additional personnel who must be trained for that skill to reach its authorized manning levels. The data should be input from the Training functional area, described in Section 3.5.

Table 3.7.3 provides a summary of the input requirements for the Reenlistment functional area.

3.7.4.2 Processing

The processing for the Reenlistment functional area can be conceptualized as:

- Developing the desired reenlistment program
- Projecting the expected reenlistments (those which will most likely occur)
- Comparing these two

Both the desired and expected results are a function of all functional area inputs being processed in the inventory; variations in programs in the other areas will affect both the desired and expected results in this area. The comparison between the desired and expected results highlights areas requiring specific management action and should affect the iterative processing of the inventory, iterations being designed to minimize the deviations between the desired and expected results.

Desired Reenlistments. The desired reenlistment program should be developed by determining those reenlistment actions which, in con-

TABLE 3.7.3
REENLISTMENTS--SUMMARY OF INPUT

INPUT	SOURCE	DETAIL	COMMENTS
Objective Force	Force Management (Section 3.4)	MOS-3 YOS Grade Sex	
Projected Authorizations	Authorizations (Section 3.2)	MOS-3 Grade Sex	
Inventory	Inventory (Section 3.3)	MOS-3 YOS Grade Sex Months to ETS Term of initial enlistment	Current and projected inventories
Total-Army Reenlistment	ELIM-COMPLIP	First term-- by sex and YOS Careerist--by YOS	Data should come from ELIM-COMPLIP, not from output report
Policy	EPMD Managers	As required	
Training	Training (Section 3.5)	MOS-3	Training required to meet authorized manning level

junction with other personnel programs, will achieve the future personnel inventory that matches the objective force and projected authorizations.

Expected Reenlistments. The expected reenlistments are derived by simulating over time the interrelated effect of reenlistments and other personnel management functions on the enlisted inventory. Factors which need to be considered when simulating to determine expected reenlistments include:

- The desired reenlistment program.
- Total-Army reenlistments as projected by ELIM-COMPLIP. System design must have the capability to cause expected reenlistments at the level of detail used by EPMD to agree in total with data produced by ELIM-COMPLIP.
- The number of people available to reenlist based on months to ETS.
- The historic propensity of soldiers to reenlist in specific skills. This must include:
 - Rates at which personnel reenlist in their current skill.
 - Rates at which personnel reenlist for other skills:
 - With retraining
 - Without retraining
- Reenlistment policies currently in effect. These may effect reenlistment behavior, overriding historical trends.
- Projected promotions. Propensity to reenlist appears to be sensitive to perceived promotion opportunity in a given skill area.
- Reenlistment bonuses. Reenlistment propensities can be expected to vary by MOS if the bonus program is changed.
- Over/short MOS lists. Efforts of reenlistment policies and counselors to shift reenlistments from over to short

MOS can be expected to cause deviation from historical propensities by MOS.

3.7.5 Mobilization Considerations

The uses and determination of reenlistment information will remain essentially unchanged under mobilization conditions as long as policy decisions continue to define length of service in current contractual terms.

- The numbers of persons in the data base would increase.
- Additional categories of personnel would be required for management purposes. The following applicable categories would be added:
 - Draftees
 - National Guard personnel
 - Reservists
 - Other (recalled retirees, veterans, etc.)
- Rates and factors would require adjustment at the time of mobilization, initially using managerial judgment supported by available analysis. As the mobilization period continued, historical rate data would be captured and substituted for the initial judgments. See also Section 3.11, Rates and Adjustments.
- Provisions should be included for involuntary extensions of term of service, should policy decisions invoke this option.

In the event of policy decisions that eliminate finite terms of service (such as the WWII policy that everyone served for "the duration plus 6 months"), the reenlistment portion of the inventory projection system would become inactive.

3.8 PROMOTIONS

3.8.1 General

The Promotions functional area requires information to forecast the numbers of enlisted personnel to be promoted to specific enlisted grades within specific MOS. Uses of these forecasts include:

- Providing MOS-level promotion requirements to ODCSPER
- Providing EPMD managers with MOS-level promotion data to manage the promotions process
- Providing the promotions and promotion-related reclassifications needed to accurately project the inventory by grade

3.8.2 Functional Information Requirements

3.8.2.1 Management Uses

The Promotions functional area will determine the expected number of promotions necessary for the inventory to match authorizations. These data will be provided to ODCSPER and used to determine the budget-year promotion program for grades E7, E8, and E9 and promotion guidance for grades E5 and E6. The ODCSPER will forward this information to EPMD to be used in the projection of promotions and in the management of the promotion process.

The promotions forecasts will be consistent with:

- Bulk promotion figures to grades E7, E8, and E9 as determined by ODCSPER
- Current policies and guidance for promotions to grades E6 and below
- Feeder patterns as defined in AR 611-201

Table 3.8.1 summarizes Promotions functional area information requirements for management use.

TABLE 3.8.1
PROMOTIONS FUNCTIONAL INFORMATION REQUIREMENTS
FOR MANAGEMENT USE

<u>Requirement</u>	<u>Detail</u>	<u>Timeliness</u>
Total number of promotions	Grade YOS	Monthly projections for current year; quarterly for budget year; year-end for 2 planning years
Promotion actions:		Monthly projections for current year; quarterly for budget year; year-end for 2 planning years
Losing and Gaining skill	MOS-3 Grade or MOS-3 YOS	
Special Reports	As specified	As required
Exception Information	MOS-3 Grade or MOS-3 YOS	As required

Program Reports. Two general, standard reports should be generated and updated quarterly. The first report should contain the following information:

- Promotion actions identifying the losing MOS-3 and grade
- Gaining MOS-3 and grade to which being promoted
- Summary information on the total numbers of promotions by MOS-3 and grade

The information to be presented in the second report includes:

- Promotion actions identified by losing MOS-3 and YOS
- Promotion actions identified by gaining MOS-3 and YOS
- Summary information on the total numbers of promotions by MOS-3 and YOS

Producing these two standard reports, one by MOS-3 and grade, the other by MOS-3 and YOS, allows for analysis of the promotion process separately by either grade or YOS and avoids large reports containing information not required by different managers.

For the current year, this information will be generated on a monthly basis; for the budget year, this information will be generated on a quarterly basis; for the 2 additional planning years, year-end information will be provided. Figure 3.8.1 provides possible formats for presenting this information by MOS-3 and grade and by MOS-3 and YOS.

Special Report Capability. In addition to the standard reports, EPMD managers should have a Special Report Capability to access additional information. For example, certain EPMD managers may require promotion information by grade and YOS for a given MOS; information may be required on sex breakout of promotions; and information regarding total CMF promotions may be required.

PROMOTIONS TO
GRADE
BY MOS-3 AND GRADE

<u>Current Year</u>	<u>Losing</u>		<u>Gaining</u>		<u>Monthly Total</u>
	<u>MOS</u>	<u>GRADE</u>	<u>MOS</u>	<u>GRADE</u>	
Oct.	XX	E8	XX	E9	XX
	.	E7	.	E8	
	.	E6	.	E7	
	.		.		XX
Nov.					XX
Dec.					XX
<u>Budget Year</u>					<u>Quarterly Totals</u>
Oct. - Dec.	XX	E8	XX	E9	XX

Summary Information

Total Year-End
Promotions

<u>Grade</u>	<u>Current</u>	<u>Budget</u>	<u>Yr 1</u>	<u>Yr 2</u>
E9	XX	XX	XX	XX
E8
E7
.
.

Figure 3.8.1. Promotions Output Formats

PROMOTIONS TO
GRADE
BY MOS-3 AND YOS

<u>Current Year</u>	<u>Losing</u>		<u>Gaining</u>		<u>Monthly Total</u>
	<u>MOS</u>	<u>YOS</u>	<u>MOS</u>	<u>YOS</u>	
Oct.	XX	XX	XX	XX	XX
	:	:	:	:	:
Nov.					
Dec.					
<u>Budget Year</u>					<u>Quarterly Total</u>
Oct. - Dec.	XX	XX	XX	XX	XX

Summary Information

<u>Total Year-End Promotions</u>				
<u>YOS</u>	<u>Current</u>	<u>Budget</u>	<u>Yr 1</u>	<u>Yr 2</u>
XX	XX	XX	XX	XX

Figure 3.8.1. (Cont.) Promotions Output Formats

Exception Reports. In addition to the standard program reports, exception reports will be produced in this area. These reports should:

- Be produced whenever there are deviations from expected promotions
- Highlight the specific areas in which the deviations occurred
- Provide this information at the same level of detail as required for the standard program reports

3.8.2.2 Projection Uses

The promotions forecasts are an integral component of the inventory projection process. Promotion information required for the Inventory projection process includes:

- The losing MOS-3 and grade by YOS and sex
- The MOS-3 and grade to which being promoted

This information will be updated monthly and provided to the Inventory functional area. The promotion forecasts will be generated monthly for the current and budget year and generated quarterly for the 2 additional planning years. Table 3.8.2 summarizes promotion information required for input to the Inventory projection process.

3.8.3 Relationships

The relationship between the Promotions functional area and other areas is presented in Figure 3.8.2. The areas which directly impact the Promotions functional area are:

- Authorizations, which provide authorized strength levels by grade and MOS-3
- Inventory, which provides the projected inventory, assuming other actions (reclassification, accession, etc.) have been processed

TABLE 3.8.2
PROMOTIONS FUNCTIONAL AREA INFORMATION
REQUIREMENTS FOR PROJECTION USE

<u>Requirement</u>	<u>Detail</u>	<u>Timeliness</u>
Promoted from	MOS-3 Grade YOS Sex	Generate monthly; monthly projections for current and budget years; quarter- ly for 2 additional planning years
Promoted to	MOS-3 Grade YOS Sex	Generate monthly; monthly projections for current and budget years; quarter- ly for 2 additional planning years

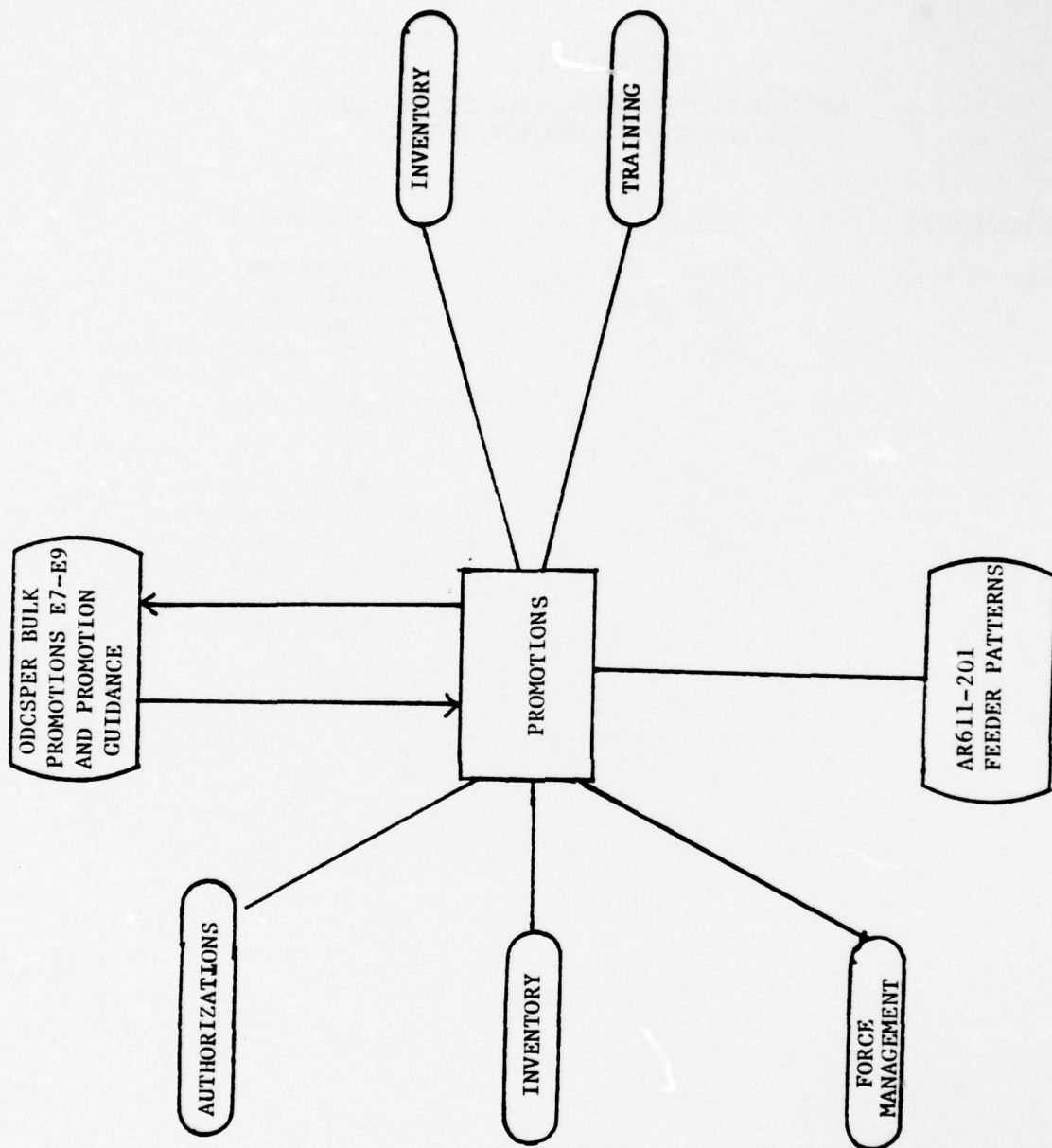


Figure 3.8.2. Promotions Relationships

- Force Management, which provides years-of-service goals by grade, MOS-3, and sex

Promotion forecasts must also be consistent with:

- Bulk promotion figures to grades E7, E8, and E9 as determined by ODCSPER
- Promotion guidance for grades E5 and E6

The promotion forecasts impact the Inventory core area, which uses promotion forecasts in the inventory projection process.

3.8.4 Input and Processing

The inputs and processing required to generate promotion forecasts are described, at a conceptual level, in this section. In Figure 3.8.3, the inputs and processing for the Promotions functional area are shown.

3.8.4.1 Input

Projected Authorizations. The projected authorizations are provided by the Authorizations core area, described in Section 3.2. These data will be detailed by:

- MOS-3
- Grade

It may be necessary to have special authorizations information disaggregated by sex (male/female content), by MOS-3, and grade. This capability is discussed in the Authorizations core area, Section 3.2.6.

Current and Projected Inventory. The Inventory core area, described in Section 3.3, will provide current and projected inventory data. These data will be detailed by:

- MOS-3
- Grade
- Years of service
- Sex

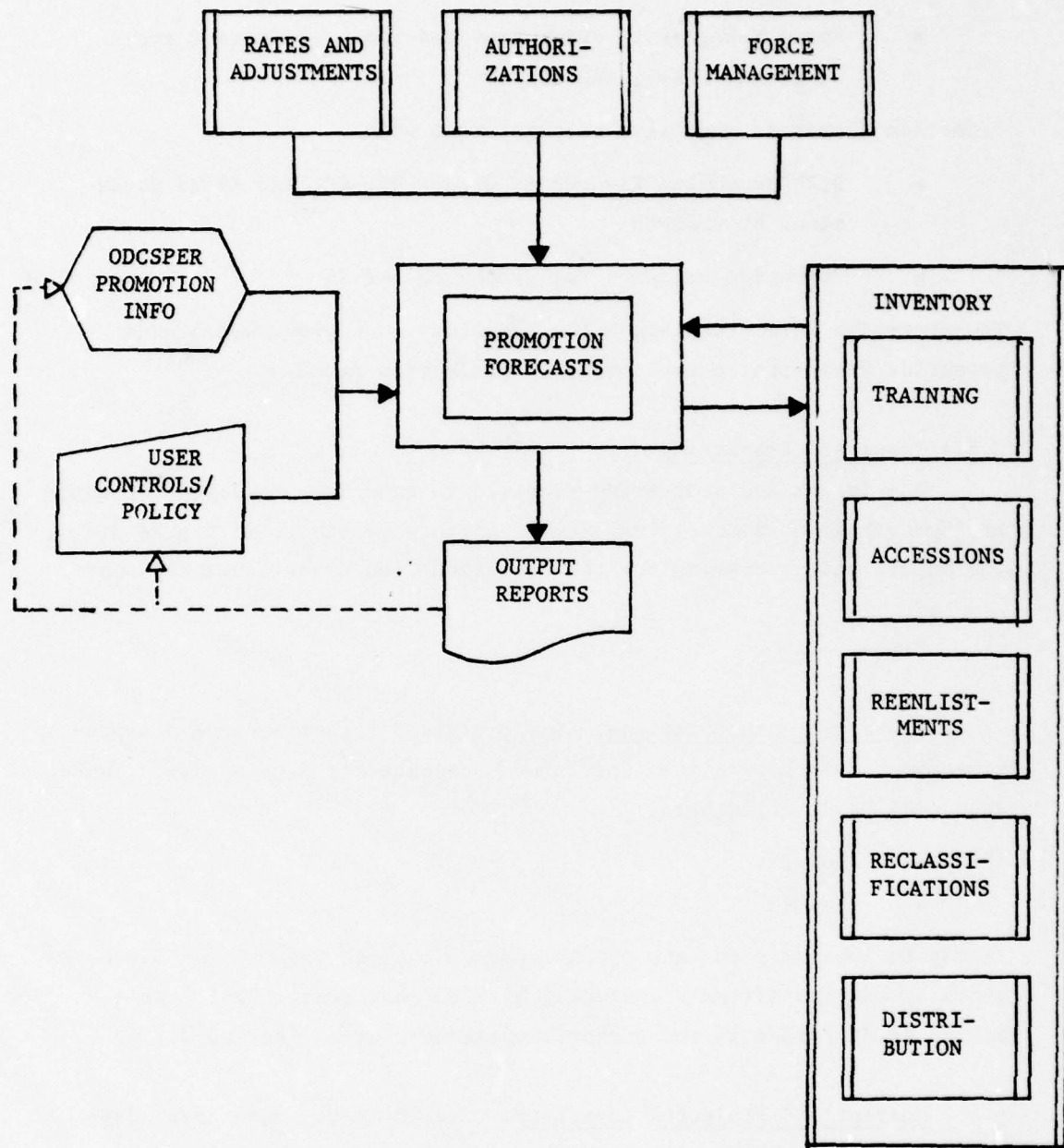


Figure 3.8.3. Promotions Input and Processing

Force Management. The Force Management functional area, described in Section 3.4, will provide years-of-service objectives to be used in allocating promotions. These data will be detailed by:

- MOS-3
- Grade
- Years of service
- Sex

Promotion Quotas and Policies. EPMD should provide to ODCSPER projected promotion requirements by grade and MOS-3 for the current and budget years. ODCSPER will use these data to develop:

- Monthly promotion quotas for grades E7 through E9. These quotas will define the number of personnel to be promoted into these grades.
- Monthly promotion guidance for grades E5 and E6. This guidance will provide a goal number of promotions into these grades, from which a cut-off promotion point score will be determined. The actual number of promotions may, therefore, differ from the guidance.
- Promotion policies for grades E4 and below. These policies will provide the means by which promotions into these grades will be determined.

This information should be provided back to EPMD for incorporation into projection of expected promotions for the current and budget years. Beyond the budget year, an assumption should be made that promotion quotas and policy will cause expected promotions to equal those required to cause the projected inventory to match (in grades) the approved grade structure as reflected in projected authorizations.

MOS Feeder Patterns. Promotions will, as a rule, follow the progression patterns defined in AR 611-201. Figure 3.3.5 (in Section 3.3, Inventory) shows a typical feeder pattern.

Promotion MOS. For those individuals already selected for promotion, the promotion MOS from the EMF, rather than the MOS Feeder Pattern, will be used to project the MOS change which occurs with promotion. In this way, promotions outside of normal MOS feeder patterns will be accommodated in the projection of inventory.

Table 3.8.3 summarizes the input requirements for the Promotions functional area.

3.8.4.2 Processing

The conceptualized processing in the forecasting of promotions involves:

- Determining the required number of promotions by comparing the projected inventory with projected authorizations
- Applying ODCSPER budget-year promotion program numbers for grades E7 through E9 and promotion guidance for grades E5 and E6
- Determining MOS feeder patterns
- Distributing promotions across feeder MOS by YOS and grade for the current and budget years
- Determining expected promotions (inventory vs. authorizations) in the 2 planning years (assume expected promotions equals requirement)
- Accounting for the numbers and characteristics of personnel by losing and gaining MOS-3 and grade

General Processing. The Promotions functional area determines the required number of promotions necessary to match the inventory with authorizations. (Note: In the Authorizations process (Section 3.2), projected authorizations are constrained to agree with approved grade standards.) The required numbers of promotions are the deviations, by grade, between projected inventory and projected authorizations. These

TABLE 3.8.3
PROMOTIONS--SUMMARY OF INPUT

Input	Source	Detail	Comments
Projected Authorizations	Authorizations (Section 3.2)	MOS-3 Grade	
Inventory	Inventory (Section 3.3)	MOS-3 Grade YOS Sex	Current and projected inventories
Objective Force	Force Management (Section 3.4)	MOS-3 Grade YOS Sex	
Promotion quotas E7-E9, promotion guidance E5-E6	ODCSPER	By grade, for E7-E9: monthly for current and budget year	Bulk promotion numbers are not determined for grades E5-E6; ODCSPER provides guidance for the numbers of promotions to E5 and E6
Feeder patterns	AR 611-201	MOS-3	
Promotion MOS	EMF	MOS-3 Grade	Pertains for individuals already selected for promotion. Replaces MOS Feeder Pattern for projecting MOS change associated with near-term promotions.
Policy	ODCSPER EPMD managers	As required	

data are forwarded to and used by ODCSPER to determine the budget-year promotion program for grades E7 through E9 and promotion guidance for grades E5 and E6. Promotions forecasting then uses these promotions data to determine the expected promotions in the near term. In the 2 planning years, it is assumed that expected promotions equal the requirement to bring the inventory to authorized levels.

The forecasting of promotions is a cascading process. When filling requirements by promoting to a specific grade and MOS, additional spaces are made available in the grade and MOS from which being promoted. Figure 3.8.4 presents the cascading process of determining expected promotions and promotion requirements.

Not all available spaces by grade and MOS will be filled during the projection of promotions because of:

- Overall grade constraints limiting total by-grade strength and
- Overages in one MOS blocking promotions to that grade in other MOSs

When this situation occurs, the processing should have the capability of distributing available promotions proportionately among understrength MOSs or insertion of management priorities for MOS to receive available promotions.

3.8.5 Mobilization Considerations

In the event of mobilization, there are several key elements of the Promotions functional area that may be affected by policy decisions. Specific areas of the forecasting process that will possibly be altered are:

- The centralized promotion to grades E9, E8, and E7.
- The determination of lower grade promotions based on promotions to grades E9, E8, and E7.

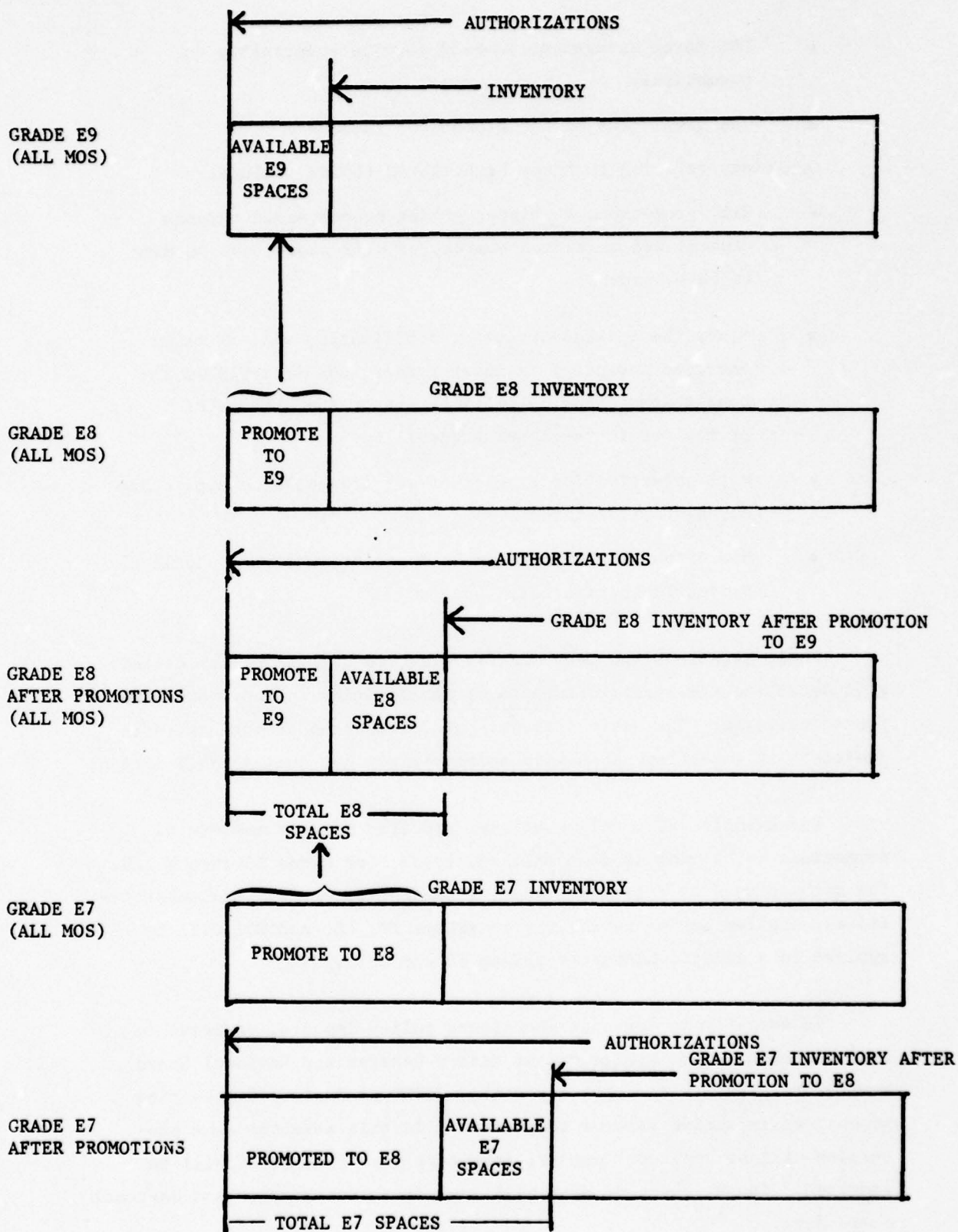


Figure 3.8.4. Cascading Effect of Promotions

- The Force Management year-of-service constraints on promotions.
- The timeliness of the promotions forecast.

Questions relating to these highlighted topics include:

- Will promotions to higher grades be processed through centralized selection boards, or will promotions be made in bulk numbers?
- Since the initial impact of mobilization will greatly increase inventory in lower grades, specifically in the combat arms, should limits be set on the numbers of promotions in the lower grades?
- Will objective force years-of-service goals be applicable during mobilization?
- How often will promotions be forecast, and what should the projection period be?

These questions and many others, answered by HQDA policy decision, will determine the specific impacts of mobilization on the Promotions functional area. The basic framework of forecasting promotions, presented in this section, is easily adaptable for use during mobilization.

For example, HQDA policy may set specific monthly numbers of promotions to be made to each enlisted grade, for grade E3 through E9. The methods used to determine feeder flow (for promotions and substitutions), applied during peace time to grades E9, E8, and E7, will be applied in a similar manner to grades E6 and below.

In addition to the above-mentioned policy impacts, an issue to be considered is the management of active Reserve and National Guard components. Policy decision may require EPMD to include forecasting promotions in active Reserve components. In this case the same processing will be applied; however, inventory data from RCPAC will be required. These inventory data will include active Reserve and National Guard data.

3.9 RECLASSIFICATIONS

3.9.1 General

Reclassifications functional area provides EPMD with forecasts of gains and losses to MOSs resulting from reclassifications. The forecasts are used to:

- Project the inventories by MOS to incorporate reclassifications with other types of gains and losses.
- Determine the number of reclassifications involving retraining in order to "fence" or hold spaces for this type of resource in the training pipeline.
- Determine what reclassification controls should be initiated to better balance the inventory with authorizations and the objective force.

With the exception of the first-term reenlistments and some MOS seepage, reclassifications are not currently being forecast in the EPMD projections. Reclassifications are an important element in overall forecasting and should be an integral part of the functional requirements. Their inclusion will result in increased accuracy of MOS-level projections.

Excluded from discussion in this section are movements between MOSs which occur in the following categories:

- Promotions. Shifts between MOSs which occur as a result of career progression patterns and selection for promotion in a secondary or additional MOS are discussed in Section 3.8, Promotions.
- Reenlistments. Shifts between MOSs which occur as a result of reenlistment in an MOS other than current MOS are discussed in Section 3.7, Reenlistments.
- MOS Conversions. Shifts between MOSs caused by redefinition of the MOS structure are discussed in Section 3.2, Authorizations, and Section 3.3, Inventory.

3.9.2 Functional Information Requirements

3.9.2.1 Management Uses

Information requirements include expected reclassifications by grade, gaining MOS, losing MOS, sex, and years of service, by type of reclassification. Additionally, managers in the Reclassifications functional area require MOS overage/shortage information described in Section 3.4, Force Management.

Controllability. Reclassifications can be described in terms of uncontrollable and controllable actions:

- Uncontrollable actions are reclassifications over which EPMD has little or no control. Mandatory reclassifications due to medical reasons or loss of nuclear surety clearance are examples of this type of migration.
- Controllable actions are reclassifications which EPMD management can control to some degree through its approval authority in the application process and through direction and guidance in implementing strength realignment. Voluntary reclassifications are an example of controllable actions.

The control over reclassification actions will also vary by losing and gaining MOSs. Whereas the movement out of the losing MOS may be uncontrollable for reasons described above, EPMD should control which MOSs are "open" to reclassification input in order to direct reclassification to the MOS of greatest need. The reclassification function information can be effectively utilized by EPMD in managing and monitoring the reclassification program.

3.9.2.2 Projection Uses

Table 3.9.1 outlines the projection requirements of reclassifications. The level of detail and timeliness are provided for each of the requirements. The areas requiring reclassification projections are Inventory, Training, and Accessions. Reclassifications should be updated monthly to assure timely and accurate projections. With monthly updates,

TABLE 3.9.1
RECLASSIFICATIONS FUNCTIONAL INFORMATION REQUIREMENTS

<u>Requirement</u>	<u>Detail</u>	<u>Timeliness</u>
Inventory	MOS-3* Sex Grade YOS Source of new primary MOS Training rqmt.	Monthly projections for current and budget fiscal years, plus quarterly projections for 2 additional planning years.
Training	MOS-3 Sex Training rqmt.	Monthly projections for current and budget fiscal years plus quarterly projections for 2 additional planning years.
Accessions	MOS-3 Sex	Monthly projections for current and budget fiscal years plus quarterly projections for 2 additional planning years.

* MOS-3 level of detail required for both the gaining and losing MOSs.

the most recent monthly reclassification approvals can be included in the forecasts. The projection uses are:

- Inventory--Reclassifications data are used in the inventory projection process
- Training--Reclassifications data are used to "fence" the spaces that can be filled by Army resources in the training pipeline
- Accessions--Reclassifications are used to determine what portion of the training requirements should be met through accessions to the Army.

A sample format has been developed to detail the output of the reclassification functional information requirements. This format is provided in Figure 3.9.1.

MIS-3		Grade	Status		Qualification		Sex		Mgt. Control		YOS		3		4		5		6		7		8		9		10		11-15		16-20		21-25		26-30		Total
Gaining PMOS	Losing PMOS		Appr.	Proj.	Trnd	Untrnd	M	F	Cont	Uncont	1	2	16-20		21-25		26-30		31-35		36-40		41-45		46-50		51-55		56-60		61-65		66-70				

Figure 3.9.1. Reclassifications Output Format

The format in Figure 3.9.1 details the specifications required of the Reclassifications functional area. Further amplification of these requirements are:

- Status of reclassifications. This requirement differentiates between those actions which have already been approved but not yet consummated and those that are projected actions.
- Qualification of reclassifications. Forecasts should identify which reclassification candidates are already trained and those which require retraining.
- Management control of reclassifications. This control should identify controllable and uncontrollable movement actions.

Reclassification forecasting will include MOS seepage; that is, the unscheduled, patternless movement between unrelated specialties.

3.9.3 Relationships

Figure 3.9.2 shows the relationships that exist among the Reclassifications functional area and other areas. Those areas which directly impact Reclassifications are:

- Authorizations, which provide projected authorizations data.
- Force Management, which provides the objective force and over/short data.
- Inventory, which provides projected strength data.
- Training, which identifies skills with a training requirement.
- Reenlistments, which provide information on personnel reclassifying in conjunction with reenlistment.

Areas which are directly impacted by reclassifications projections are:

- Inventory, which uses the expected reclassifications to define the projected strength.
- Training, which uses the reclassifications projections to determine the required trained output from the accessions programs.

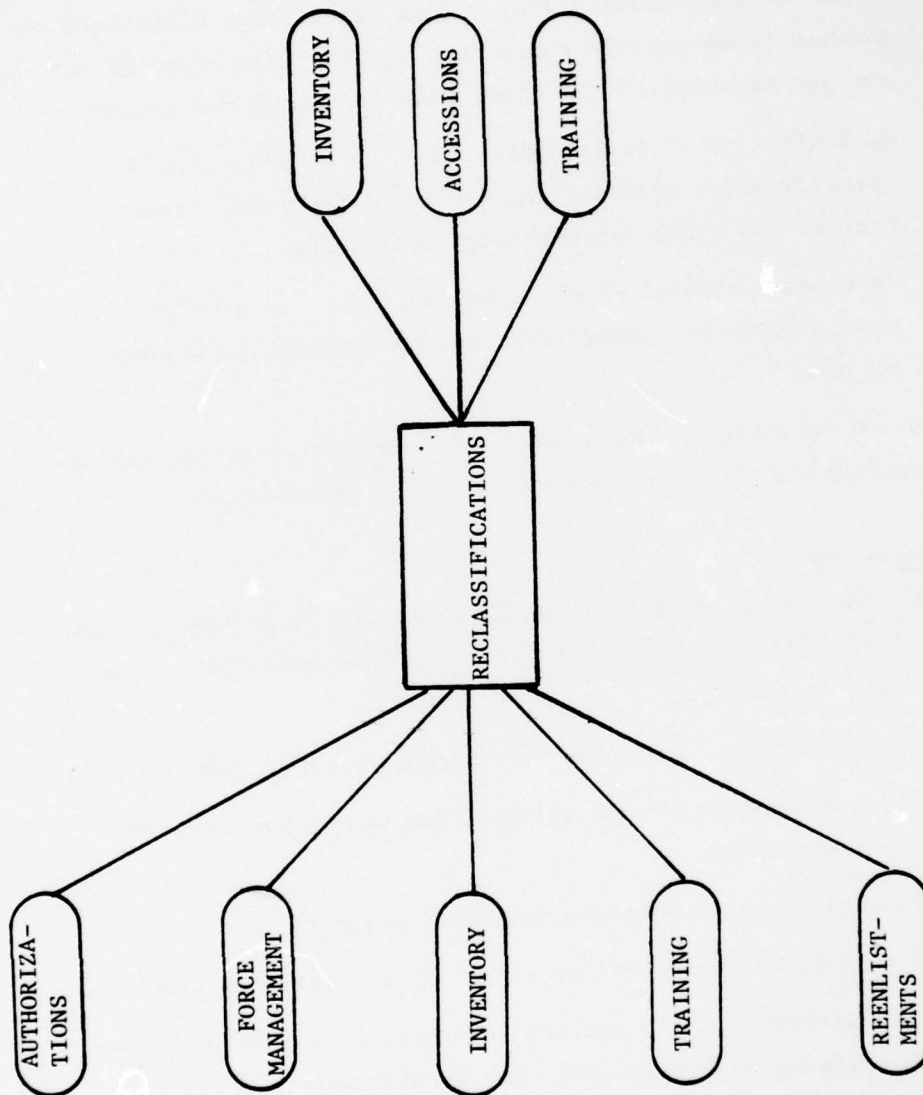


Figure 3.9.2. Reclassifications Relationships

It is important to point out the differences between Force Management and Reclassifications functional areas' relationships with the Inventory core area. Force Management is a function providing objectives in terms of year group, sex, MOS, etc., derived by comparing the objective force with a projected inventory. These objectives are the "desirable" numbers in which gains or losses should be made--some of which might be reclassifications. Reclassifications, on the other hand, are the "probable" number of moves resulting from reclassifications.

3.9.4 Input and Processing

Figure 3.9.3 depicts the input and general processing flow of the Reclassifications function. This function is unique in that reclassifications experience data are primary input to the Reclassifications functional area.

3.9.4.1 Input

Table 3.9.2 provides a summary of the input requirements for the Reclassifications functional area. These inputs are:

- Reclassification Experience Data. The GYMP data base provides the history needed to project future reclassifications. Current output of this data base includes an Enlisted Force Migration Report. This report, shown in Figure 3.9.4, contains the gaining and losing PMOS and the type of reclassification. GYMP also provides the approved but not yet consummated actions. It should also be used to determine whether the reclassification requires training and whether any management control can be exercised. The data base provides codes for "Source of New PMOS" which will assist in the determination of how much management control can be exercised over the movement. Table 3.9.3 describes these codes.
- Inventory. Inventory data are used to determine how reclassifications without retraining will impact manning levels when compared to the authorizations. (See Section 3.3 for description of the Inventory core area.)

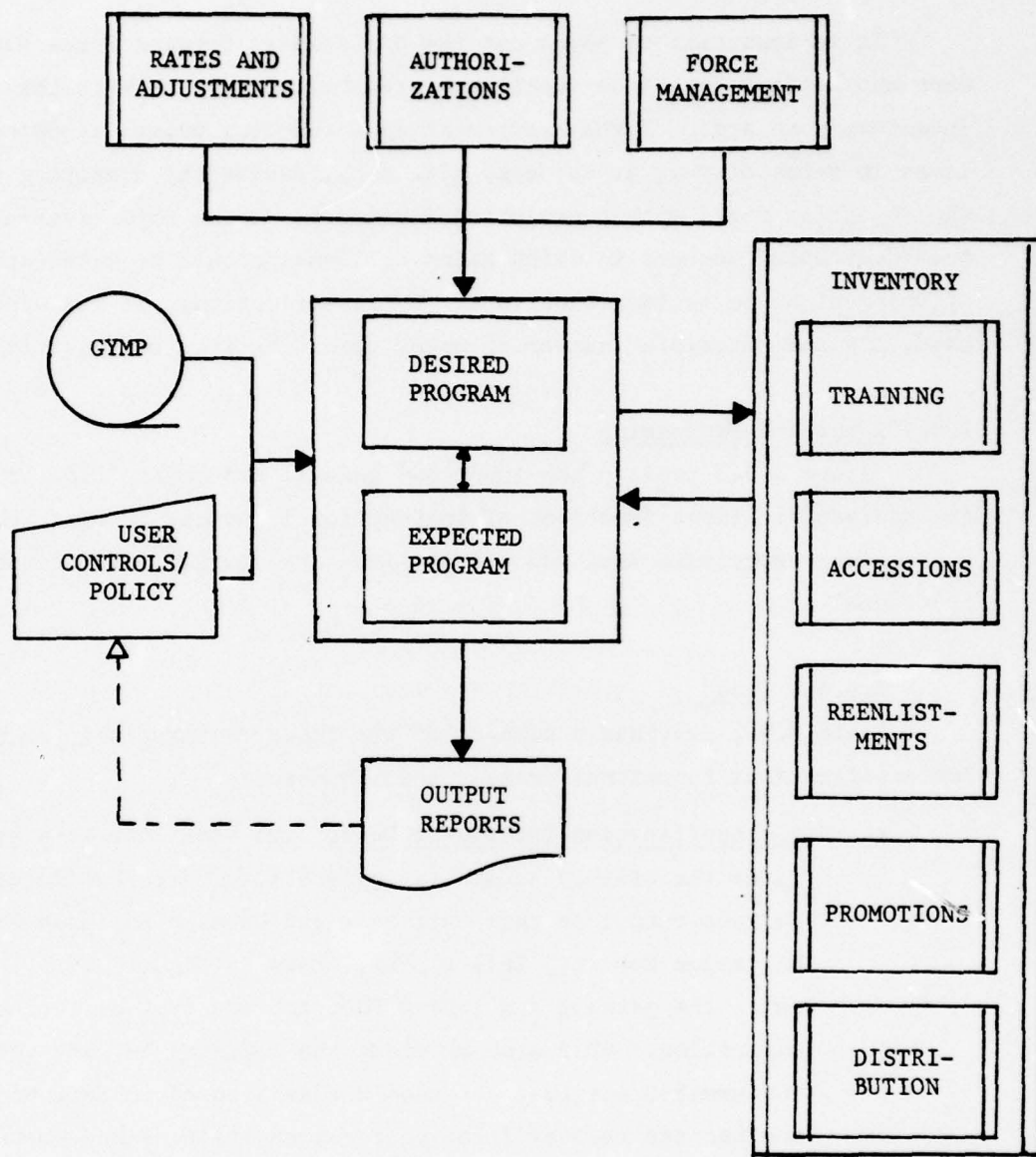


Figure 3.9.3. Reclassifications Input and Processing

TABLE 3.9.2
RECLASSIFICATIONS--SUMMARY OF INPUT

<u>Input</u>	<u>Source</u>	<u>Detail</u>	<u>Comments</u>
Reclassification Experience Data	GYMP Data Base	MOS-3 YOS Sex Grade Source of new PMOS Status Training Rqmt.	MOS should be detailed for both the gain- ing and losing MOSSs
Inventory Data	Inventory (Section 3.3)	MOS-3 Sex Grade YOS	Used with auth. data to determine whether reclassifi- cations without retraining can be used in MOSSs
Authorizations Data	Authorizations (Section 3.2)	MOS-3 Sex Grade	Used with inventory data to determine whether reclassifi- cations without retraining can be used in MOSSs
Force Management Objectives	Force Mgt. (Section 3.4)	MOS-3 YOS Sex Grade	Used with training to determine rqmts. and over, short, & balanced status of MOSSs
Training Rqmts.	Training (Section 3.5)	MOS-3 Sex Grade	Used with Force Mgt. objectives to determine whether reclassifications can be made with retraining
Reenlistment Retrainees	Reenlistment (Section 3.7)	MOS-3 Sex Grade	Used to determine how many of the training rqmts. have designated resource for fill

FY 78 ENLISTED FORCE MIGRATION REPORT
BY
MOS, GAINS/LOSSES, LOSSES/GAINS, SEX, REASON
FOR
YEAR GROUP MANAGEMENT PLANNING & ANALYSIS SECTION
(DAPC-EPF-A)

PART V

RECAPITULATION OF GAINS/LOSSES
WITHOUT REGARD TO SEX

GAINING PHOS	LOSING PHOS	DIRECTED	REEMIL/RECLAS VOLUNTARY	PROMOTION RECLAS	DIRECTED	ALL OTHER RECLASSIFICATIONS VOLUNTARY	MANDATORY	TOTAL
00H	12H	0	1	0	0	0	0	1
	13H	0	1	0	0	0	0	1
	14H	0	0	0	0	0	0	1
	45H	0	1	0	0	0	0	1
	61C	0	0	0	0	0	0	1
	63H	0	1	0	0	0	0	1
	76H	0	1	0	0	0	0	1
00H	TOTAL	0	5	0	0	2	0	7
00E	00J	0	0	0	0	1	0	1
	01H	0	0	0	0	6	0	6
	02H	0	0	0	0	1	0	1
	07E	0	0	0	0	1	0	1
	03C	0	0	0	0	1	0	1
	05H	0	0	0	0	9	0	9
	05C	0	0	0	0	15	0	15
	05E	0	0	0	0	1	0	1
	05F	0	0	0	0	3	0	3
	05H	0	0	0	0	3	0	3
	09H	0	0	0	0	1	0	1
	11H	0	0	0	0	216	1	217
	11C	0	0	0	0	38	0	38
	11D	0	0	0	0	20	0	20
	11E	0	0	0	0	38	0	38
	11F	0	0	0	0	1	0	1
	12H	0	0	0	0	43	0	43
	12C	0	0	0	0	5	0	5
	12E	0	0	0	0	8	0	8
	13H	0	0	0	0	66	0	66
	13E	0	0	0	0	31	0	31
	13F	0	0	0	0	1	0	1
	15H	0	0	0	0	1	0	1
	15D	0	0	0	0	6	0	6
	15E	0	0	0	0	10	0	10

Figure 3.9.4. Excerpt from FY 78 Enlisted Force Migration Report.

TABLE 3.9.3
SOURCE OF NEW PMOS CODES--GYMP DATA

FORCE MANAGEMENT FILE
DATA BASE DEFINITION

1. DATA ELEMENT: SOURCE OF NEW PMOS
2. ABBREVIATION: SPMOS
3. COMPONENT NUMBER: C18 KEYED
4. DEFINITION: Designates the source of the newly acquired PMOS
5. LENGTH: 1 character CLASS: Alphanumeric
6. VALID CODES USED WITH DATA ELEMENT:
 - A - Directed reclassification
 - B - Voluntary "
 - C - Mandatory " due to reasons other than codes 1-4 below
 - 1 - " " due to medical (physical) reasons
[ref para 2-29a(2), AR 600-200]
 - 2 - Mandatory reclassification due to MOS test failure
 - 3 - Mandatory reclassification due to loss of Nuclear Surety clnc (ref AR 50-5)
 - 4 - Mandatory reclassification due to inefficiency - commander's evaluation (ref para 2-29b, AR 600-200)
 - D - Promotion
 - E - Directed retraining/OJT
 - F - Voluntary retraining/OJT
 - G - Mandatory retraining/OJT due to reasons other than Codes 5-8 below
 - 5 - " " " due to medical (physical) reasons [ref para 2-29a(2), AR 600-200]
 - 6 - Mandatory retraining/OJT due to MOS test failure (ref para 2-29c, AR 600-200)
 - 7 - Mandatory retraining/OJT due to loss of Nuclear Surety clnc (ref AR 50-5)
 - 8 - Mandatory retraining/OJT due to inefficiency - commander's evaluation (ref para 2-29b, AR 600-200)

TABLE 3.9.3 (Cont.)
SOURCE OF NEW PMOS CODES--GYMP DATA

- H - Directed retraining/ATC
- J - Voluntary retraining/ATC
- K - Rescinded (formerly Stripes-or-Skill requiring training)
- M - Career Branch Strength Realignment and Cross Leveling

NOTES:

MAY BE BLANK (Only if C15, C16, and C17 are blank)
For prior-service actions, use code "B" if no formal schooling is involved; use code "J" for those requiring formal schooling, except those involving DOCRAT school quotas noted below.

Use code "M" for DOCRAT reclassification actions and those reenlistments (in-service or prior service) where DOCRAT school quotas are obtained.

- Authorizations. Authorizations data are compared with the inventory data to determine whether reclassifications without retraining can be moved. The comparison of the projected authorizations to the projected inventory will also be used to determine training requirements for placement of future potential reclassifications. (See Section 3.2 for a description of the Authorizations core area.)
- Force Management Objectives. These objectives will provide the grade, sex, and YOS goals by MOS. They will be correlated with the training requirements to determine in which MOSs reclassifications should be forecast. (See Section 3.4 for a description of the Force Management functional area.)
- Training Requirements. This input provides the number of requirements needed to adequately strengthen a specialty. This input is coupled with the Force Management objectives described above to determine where reclassifications requiring training can be accommodated. (Section 3.5 describes the Training functional area.)
- Reenlistment Retrainees. The number of reenlistment retrainees is used to determine how many of the training requirements still require resources after the reenlistment retrainees are accounted for. These actions can also be used to adjust the year-group objectives of Force Management. (See Section 3.7 for a description of the Reenlistments functional area.)

3.9.4.2 Processing

Reclassifications should be processed in phases. This is necessary to determine projected movement to the inventory to be used in computing the training requirements and projected movement to satisfy some of the resources applied to filling the trained personnel requirements. The process starts by using the history data of GYMP and determining the trained/untrained mix of the forecasted reclassifications.

- Process Trained Reclassifications. Gains and losses to the the trained inventory are projected. This will be done by comparing the authorizations with the inventory and projecting movement. Management control can be exercised here depending on the various strength levels of the MOSs and the amount of management control exercisable. Even in those instances where the projected loss movement is uncontrollable, the inventories to which the gains are applied may be controllable. This would be especially true in those cases where the individual is dual-qualified, e.g., space imbalance personnel. There are times when it will be beneficial for EPMD management to exercise its control over reclassification movement. The short/surplus conditions of some MOSs can be remedied with this control.
- Process Training Requirements and Force Management Objectives. After the inventory has been projected and compared to authorizations data, trained personnel requirements are computed. These training requirements should be used in conjunction with force management objectives. This processing will blend the needs of both functions, and reclassifications can be made to satisfy both at the same time. The number of reenlistment retrainees is used to compute the number of training spaces that still require fill. This is done by decrementing the trained personnel requirements by the forecasted reenlistment retrainees.
- Process Untrained Reclassifications. Projecting reclassifications that are based on empirical experience and potential MOSs determined in the previous process can now be accomplished. Experience data are used to project the movement. Here again, management control should be exercised even to the point where a particular year-group movement is processed to satisfy requirements. This can only be accomplished if the experience data provide probable year-group movement. EPMD should be provided with the

capability to totally restrict movement both in and out of a given MOS. This restriction capability is applied in instances where an MOS is determined to be either critically short or over. Restrictions can only be applied to controllable movement.

Forecasting reclassifications will enhance the projections of personnel requirements considerably. The functional information provided by reclassifications should play a significant part in the total forecasting concept.

3.9.5 Mobilization Considerations

Under mobilization conditions, there will be definite impacts on reclassifications; however, the extent and direction of change is uncertain. In peacetime conditions, the process involves projecting the migration or seepage based on experience data. The patterns will undoubtedly change during mobilization. The difficulty will be in predicting, without experience factors, the effects of mobilization on reclassifications.

The effects of mobilization on reclassifications will be influenced by the policy decisions pertaining to the issues identified in Section 3.13. The following mobilization considerations have impacts on reclassification forecasting:

- Decentralization of authority. It is probable that greater decentralization of authority for personnel management decisions will exist in a mobilized environment. Decisions would quite likely be made by commanders in the field based on their needs at the time regardless of total Army requirements and objective force goals.
- Combat Zone Rotation. If rotation of personnel is limited, the number serving in a DMOS that differs from the PMOS may be significant enough to influence forecasts for

trained personnel requirements. Rapid rotation of personnel in space-imbalance MOSs to the combat zone would increase the number of reclassifications, while limited rotation of this type of personnel would decrease reclassifications.

- Casualty Rates and Factors. There should be positive correlation between increased casualty rates and reclassifications. Changes from combat and combat-support MOSs to non-combat specialties for medical reasons should increase. There would also be impacts on the THS accounts and the flow from the operating to the overhead strengths due to casualties.
- Directed Reclassifications. Directed reclassifications may be a "way of life" during mobilization. The priorities to fill certain MOSs, specifically those in Combat Arms, would impact reclassifications significantly. There would also be corresponding impacts on training requirements resulting from directed reclassifications.
- Reserve Units. When reserve units are activated, the inventory should be based on DMOS as personnel will not ordinarily rotate out of the organization.

In summary, the impacts of mobilization on forecasting reclassifications will be better measurable when there are enough experience data to better project movement.

3.10 DISTRIBUTION

3.10.1 General

The requirement in the Distribution functional area is to provide EPMD managers with detailed authorizations and strength data, both current and projected, in order to monitor distribution activities which maintain Army commands at the level necessary to perform their missions. Information in this functional area will provide EPMD with the projections needed to:

- Monitor strength status of commands
- Verify command-submitted requisitions
- Determine command-related quotas for input to RETAIN and REQUEST
- Establish command quotas for uncommitted graduates from initial, entry-level training

3.10.2 Functional Information Requirements

3.10.2.1 Management Uses

Information in this functional area should provide EPMD managers with projections needed to develop and monitor distribution programs for each of four management categories: CONUS installations, functional commands, oversea commands, and overall distribution. Additionally, information should allow management by divisions. These information requirements are summarized in Table 3.10.1. The timing and level-of-detail requirements for this information are:

- Update monthly
- Monthly projections for next 12 months
- Grade
- MOS-3
- ASI
- SQI
- LIC

2

TABLE 3.10.1
DISTRIBUTION FUNCTIONAL INFORMATION REQUIREMENTS
FOR MANAGEMENT USE

<u>Requirement</u>	<u>Detail</u>	<u>Timeliness</u>
CONUS	Installation MOS-3 Grade	Generate monthly; monthly projections for next 12 months
Functional Commands	Functional and Joint commands, HQDA Staff MOS-3 Grade	Generate monthly; monthly projections for next 12 months
Oversea Commands	Command MOS-3 Grade	Generate monthly; monthly projections for next 12 months
Overall	Command	Generate monthly; monthly projections for next 12 months
Divisions	Each division MOS-3 Grade	Generate monthly; monthly projections for next 12 months
Exception Information	As required	As required

- Command¹
 - Oversea commands
 - Functional commands (including HQDA and Joint commands)
 - CONUS installations
 - Divisions

Figure 3.10.1 provides formats by which these data might be presented.

Exception reports should be generated whenever the deviation between the authorized and projected force distribution exceeds a management-prescribed threshold. These reports should be presented in the same detail as the standard reports and should highlight the excessive deviations to identify areas requiring specific management action.

3.10.2.2 Projection Uses

Distribution projections are a component of the inventory projection process. These data must be present to enable the projection of the inventory at the level of detail needed to fulfill distribution management uses. The distribution of the inventory will also affect the expected projections of the inventory; e.g., historically, enlisted reenlistment patterns have been partly a function of distribution. Accurate inventory projections--and, therefore, accurate projections of functional area programs--require inclusion of projected distribution information. The timing and level of detail needed to support this requirement are:

- Update monthly
- Monthly projections for current and budget year, plus quarterly projections for 2 additional planning years

¹As used throughout this section, the term "command" refers to that level of command required to separately identify the commands in each of the listed categories, for example, each major overseas command, each division, each CONUS installation.

DISTRIBUTION--CONUS*

BY INSTALLATION

MOS-3

		MONTH--...					
<u>GRADE</u>		<u>CURR</u>	<u>+1</u>	<u>+2</u>	<u>+3</u>	...	<u>+11</u>
E1-E3	AUTH	↓	↓	↓	↓		↓
	PROJ						
	%						
⋮	⋮						

DISTRIBUTION--CONUS*

BY INSTALLATION

MOS-3

		MONTH--...				
<u>GRADE</u>		<u>CURR</u>	<u>+1</u>	<u>+2</u>	...	<u>+11</u>
E1-E3	AUTH	↓	↓	↓	↓	↓
	REQ GAINS					
	AVAIL GAINS					
⋮	⋮					

*Same formats would also apply for functional commands, oversea commands, and divisions.

Figure 3.10.1. Distribution Output Formats

DISTRIBUTION--OVERALL
BY COMMAND

<u>COMMAND</u>		<u>MONTH</u>				
<u>command</u>		<u>CURR</u>	<u>+1</u>	<u>+2</u>	<u>...</u>	<u>+11</u>
	AUTH	↓	↓	↓		↓
	PROJ					
	%					
⋮	⋮					

DISTRIBUTION--OVERALL
BY DIVISION

<u>DIVISION</u>		<u>MONTH</u>				
<u>division</u>		<u>CURR</u>	<u>+1</u>	<u>+2</u>	<u>...</u>	<u>+11</u>
	AUTH	↓	↓	↓		↓
	PROJ					
	%					

Figure 3.10.1. (Cont.) Distribution Output Formats

- MOS-3
- Grade
- Command

3.10.3 Relationships

Figure 3.10.2 provides a picture of the basic relationships between Distribution, core areas, and other systems. Both the Authorizations and Inventory information requirements will directly influence Distributions projections; Distribution, in turn, will directly influence Inventory projections and, therefore, indirectly influence all of the other functional areas.

The Distribution functional area also has vertical relationships: the AAMMP system provides projections of losses, gains, and total strength with which the distribution projections must be consistent; the resulting distribution projections will be used by the REQUEST and RETAIN systems to identify specific command quotas for training and reenlistment requirements.

3.10.4 Input and Processing

This subsection discusses the general input and conceptual processing needed to project the information required. Figure 3.10.3 depicts these general input and processing relationships.

3.10.4.1 Input

Active Army Military Manpower Program (AAMMP). This product provides the official, total-Army programs, by month. Distribution projections should be consistent with the AAMMP. In particular, data required for this functional area are:

- Total strength
- Loss information
- Gains, to include HAAP
- Output from initial-entry training

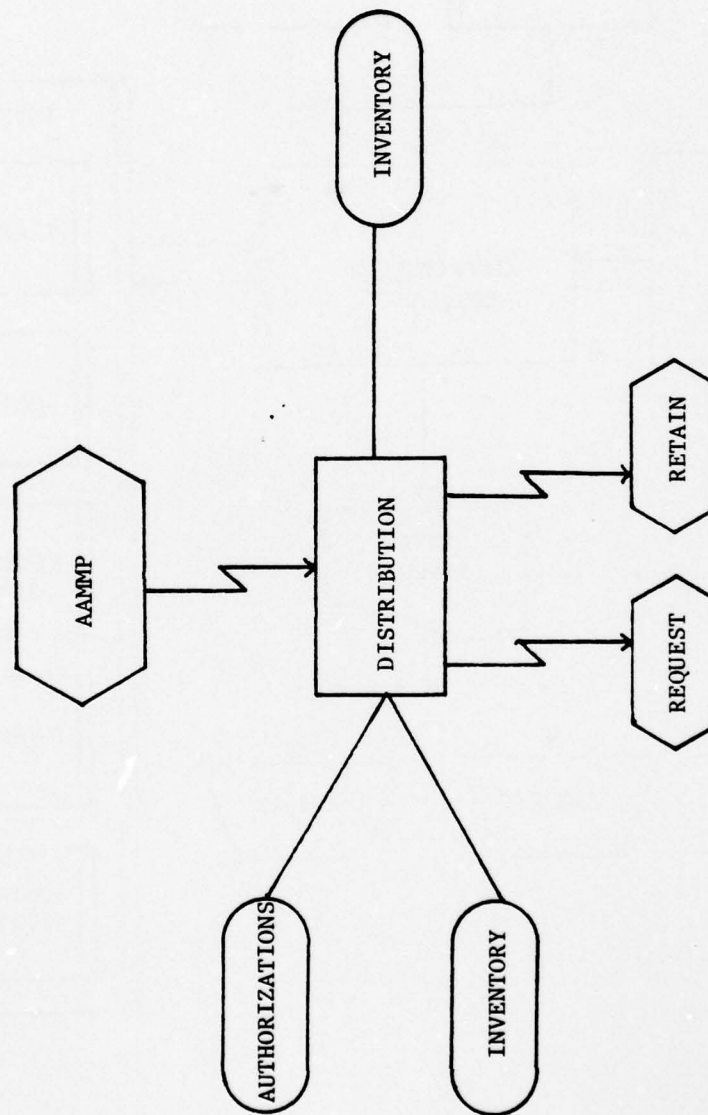


Figure 3.10.2. Distribution Relationships

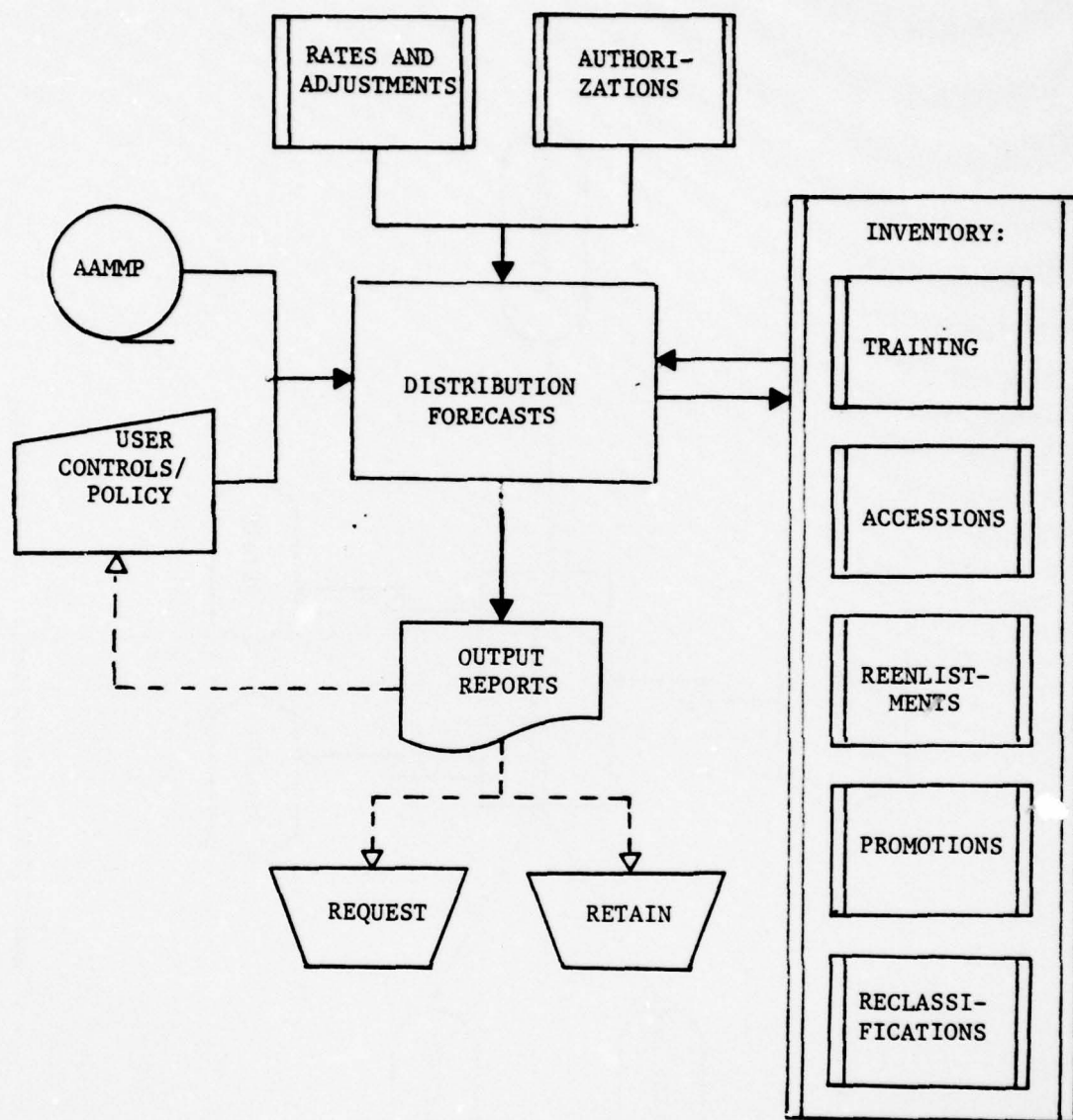


Figure 3.10.3. Distribution Input and Processing

Authorizations. Authorizations, both current and projected, are input from the Authorizations core area (as described in Section 3.2, authorization projections are constrained to agree with Program Budget Guidance), detailed by:

- | | |
|-----------|----------------------|
| • Command | • ASI |
| • MOS-3 | • SQI |
| • Grade | • LIC |
| • Sex | • Security Clearance |

Inventory. Inventory data, current and projected, are input from the Inventory core area (described in Section 3.3.), detailed by:

- | | |
|-----------|----------------------|
| • Command | • ASI |
| • MOS-3 | • SQI |
| • Grade | • LIC |
| • Sex | • Security Clearance |

Current Policy. Amplifying direction from HQDA as to specific management policies should be included. An example of this type of direction is the ODCSPER, Memorandum for Commander, MILPERCEN, "Policy Guidance--Management of Oversea Strengths," 10 August 1978 (CONFIDENTIAL).

Table 3.10.2 summarizes the input requirements for the Distribution functional area.

3.10.4.2 Processing

This subsection presents the conceptual processing in the Distribution functional area. Generation of the desired programs for distribution should be accomplished by comparing command authorizations with command strengths, for both current and projected months. This direct comparison will identify the changes to the inventory needed to match the desired distribution.

The expected distribution programs would then be developed based on the desired program by the systematic application of known policies and constraints. Known policies and constraints include:

TABLE 3.10.2
DISTRIBUTION--SUMMARY OF INPUT

<u>Input</u>	<u>Source</u>	<u>Detail</u>	<u>Comments</u>
Total-Army Programs	AAMMP	Attrition losses Reenlistments Accessions Training output	
Authorizations	Authorizations core area (Section 3.2)	MOS-3 Grade Command ASI, SQI, LIC Security Clearance Sex	Current and pro- jected requirements
Inventory	Inventory core area (Section 3.3)	MOS-3 Grade Command ASI, SQI, LIC Sex	Current and projected strength
Policy		As required	Provides amplifying guidance to be used in distributing personnel to meet requirements

- Priority of fill: some commands may be brought up to their authorized levels at the expense of other commands
- Available training base output
 - Committed by command
 - Uncommitted
- Assets available for oversea assignment/reassignment
- Oversea returnees

3.10.5 Mobilization Considerations

The advent of mobilization condition would have significant impacts on Distribution and, subsequently, on other functional areas. The basic information requirements--projecting the number of personnel required to bring the commands up to authorized strength--would remain unchanged. Major changes, however, would occur in the processing required. Additional factors or impacts include:

- Increase in the numbers of persons in the data base
- Additional categories of personnel would be required, specifically:
 - Draftees
 - National Guard
 - Reservists
 - Other (recalled retirees, etc.)
- Restrictions on personnel available for distribution based on such criteria as:
 - Age
 - Sex
- Variations in loss rates according to location, e.g., commands in combat zones would be greatly affected by casualty rates, while other commands would be affected less or not at all
- Specialized policies, e.g., drawdown of one command to bring another to combat strength

3.11 INTERRELATIONSHIPS

Projected information required for EPMD management is interrelated not only among functions within EPMD, but also vertically between MILPERCEN management information and management information at the HQDA level. This section will present these interrelationships in conceptual form. It will show how the functional areas tie together to form a framework capable of achieving valid projections. As several alternative design approaches could be used to develop the system or systems to accomplish the required processing, this framework is not intended to prescribe a system design.

3.11.1 Horizontal Interrelationships

Horizontal interrelationships exist through which projected information in one functional area influences (and is in turn influenced by) another functional area. For example, projected reenlistments influence projected NPS accessions and promotion capability (as well as other projections). Concurrently, promotion capability and NPS accessions influence both the desired and expected numbers of reenlistments.

3.11.2 Vertical Interrelationships

Vertical interrelationships exist wherein projected information used by EPMD management must be in agreement with management information used at the HQDA level. The level of detail required by EPMD is considerably greater than that required by HQDA; however, the data must agree between management echelons at the aggregated level. For example, EPMD must use projected reenlistments at the MOS level of detail while the AAMMP at HQDA must use reenlistments at the first-term and careerist level of detail and subdivided into different categories other than those used by EPMD. System interrelationships must be specified to assure that these two levels of detail of reenlistment projections are consistent one with the other.

3.11.3 Integrated Modules Needed

The complexity of these interrelationships is such that the only practical solution is integrated, computerized processing module(s) as opposed to separate, functional data projection systems. Accordingly, the concept of interrelationships presented in this section shows how these integrated modules tie together data for the several functional management areas to achieve valid projections.

3.11.4 Conceptual Interrelationships

Figure 3.11.1 shows six interconnected modules that, at a very broad conceptual level, can be visualized as a means of supplying the EPMD information needs identified in preceding sections. At the base of the figure are two modules for projecting authorizations and inventory, respectively. Three modules that produce major inputs for the projection process are shown--i.e., the Objective Force, Rate/Factor Generator, and Current Inventory Modules. Shown in the center of the figure is the Report Generator and Information Retrieval Process, which receives inputs from all of the other modules and supplies information for the seven functional management areas discussed in Section 3.4 to 3.10.

Figure 3.11.2 is an exploded view of these same six modules, shown in the same relative positions and with the same interconnections. Major categories of inputs and outputs are shown for each of the modules. Inputs from and outputs to automated systems--e.g., PERSACS and ATRRS--are pictured as magnetic tapes, as are the data that are exchanged by the various modules depicted in the figure--e.g., projected authorizations. This is intended only to indicate that an automated interface is appropriate, not to specify the medium to be used. The figure shows other inputs--e.g., budget and grade limitations and user controls--being made via terminals. Further, arrows connecting some of the terminals to the various modules point in both directions, indicating that information is to be both input to and retrieved from the module. The significance is the type/source/recipient of data, not the specific mode by which the exchange is to be accomplished.

The following inputs to the Authorizations Projection Process are shown: a PERSACS file, budget and grade limitations, MOS conversions, BOIP and equipment modernization schedules, TTHS add-on, and user controls (e.g., specifications for factoring). The principal output is the file of projected authorizations, which is provided to the following modules: Objective Force, Inventory Projection, and Report Generator. Further details concerning authorizations projection are in Section 3.2.

Inputs to the module labeled Determination of Objective Force at MOS Level of Detail are as follows: the previously referenced projected authorizations (which include the TTHS add-on), the EFMP Objective Force, feeder patterns and SGA from AR 611-201, EPMS policies from AR 600-200, EPMS-based MOS/grade distributions, personnel management policies, and user controls. The principal output is a file defining the Objective Force at the MOS level of detail, which is provided to the following modules: Inventory Projection and Report Generator. Further details concerning the objective force are in Section 3.4.

Inputs to the Rate/Factor Generator are as follows: historical inventory data from the EMF; historical gain and loss data from the GLF; historical reclassification data from GYMP; data from the AAMMP, e.g., projections of accessions, reenlistments, and attrition losses; and user controls (e.g., overrides of rates derived from historical data to reflect changes in policy or programs). The principal output is a file of rates and factors (i.e., rates at the level of detail of MOS-3 and grade for reenlistments, attrition losses, mandatory reclassifications, etc.), which is provided to the following modules: Inventory Projection and Report Generator. Further discussion of rates and factors is in Section 3.12.

Inputs to the Current Inventory Data Processor and Editor are an extract of the most recent month-end EMF and user controls (e.g., the level of detail required for the functional area(s) for which the forecast is being prepared). The principal output is a profile of

the current inventory at the user-specified level of detail. This is provided to the following modules: Inventory Projection and Report Generator.

The following inputs are shown for the Inventory Projection Process: training data from ATRRS (e.g., course lengths), the current inventory developed by the preceding module, projected authorizations, the objective force, rates and factors from the Rate/Factor Generator module, data from the AAMMP (e.g., projections of strengths, gains, and losses at the Total-Army level of detail and/or broken out by years of service), policy guidance (e.g., with respect to promotions), management controls (e.g., with respect to reenlistments in overage MOSs), MOS conversions, and near-term accessions data from REQUEST (i.e., school seats that have been reserved). Not all of these inputs are required for all projections. For example, the objective force provides the goals for the inventory projection process when year-group management is the area of concern, while projected authorizations provide these goals when the projection is in support of the Training functional area. As indicated in the figure, the Inventory Projection Process consists of comparison of projected inventories--at the level of detail appropriate for the functional area(s) being supported--with the desired inventory and bringing these into agreement to the maximum extent that is feasible in light of the relevant operational and policy constraints. The output of this process is a file of projected inventory and related data (e.g., training requirements), which is provided to the Report Generator module. Further information concerning inventory projection is in Section 3.3.

Inputs to the Report Generator and Information Retrieval Process include data from the AAMMP and files from each of the five modules discussed previously. Outputs include reports containing management information for the seven functional areas--i.e., Force Management, Training, Accessions, Reenlistments, Promotions, Reclassifications, and Distribution; a file of training requirements for ATRRS; and data for ad hoc retrieval by the various functional managers.

3.11.5 Core Areas

Figures 3.11.1 and 3.11.2 highlight the central nature of the Authorizations and Inventory core areas. The inventory projection process involves input from each of the seven functional areas and provides portions of the management information required by each. The authorizations projection process also provides output of management information to each functional area. In fact, a large share of EPMD's management information requirements represent a comparison of projected inventory with projected authorizations at different future points in time, and in different functional stratifications of data.

3.11.6 Tabular View of Interrelationships

Another view of these functional information interrelationships is contained in Table 3.11.1. This table identifies the input and output for each generalized process.

3.11.7 Summary

When viewed in totality, the personnel management process has a high degree of complexity. EPMD management information requirements are basically a simulation of this complex personnel management process over extended periods of time. As the several personnel management functions are themselves interrelated in their impact on soldiers, so must data projection processes be interrelated if they are to produce valid management information.

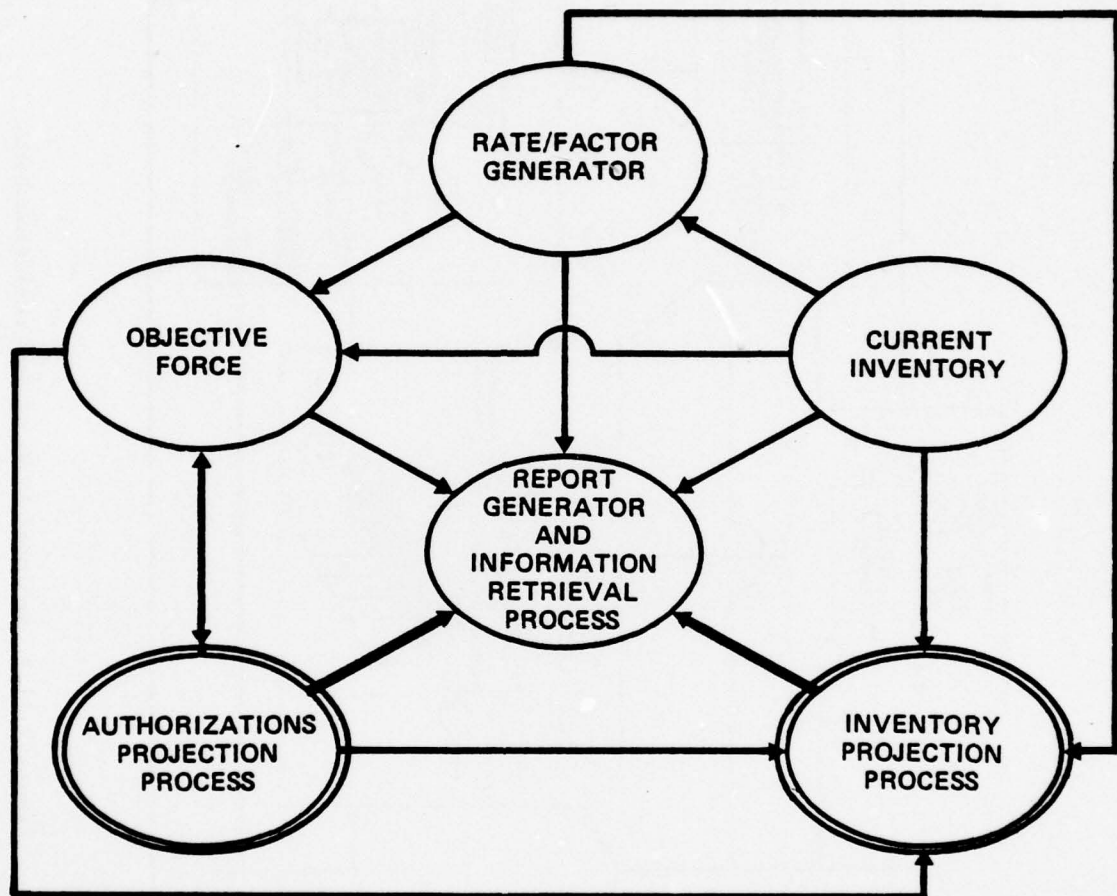
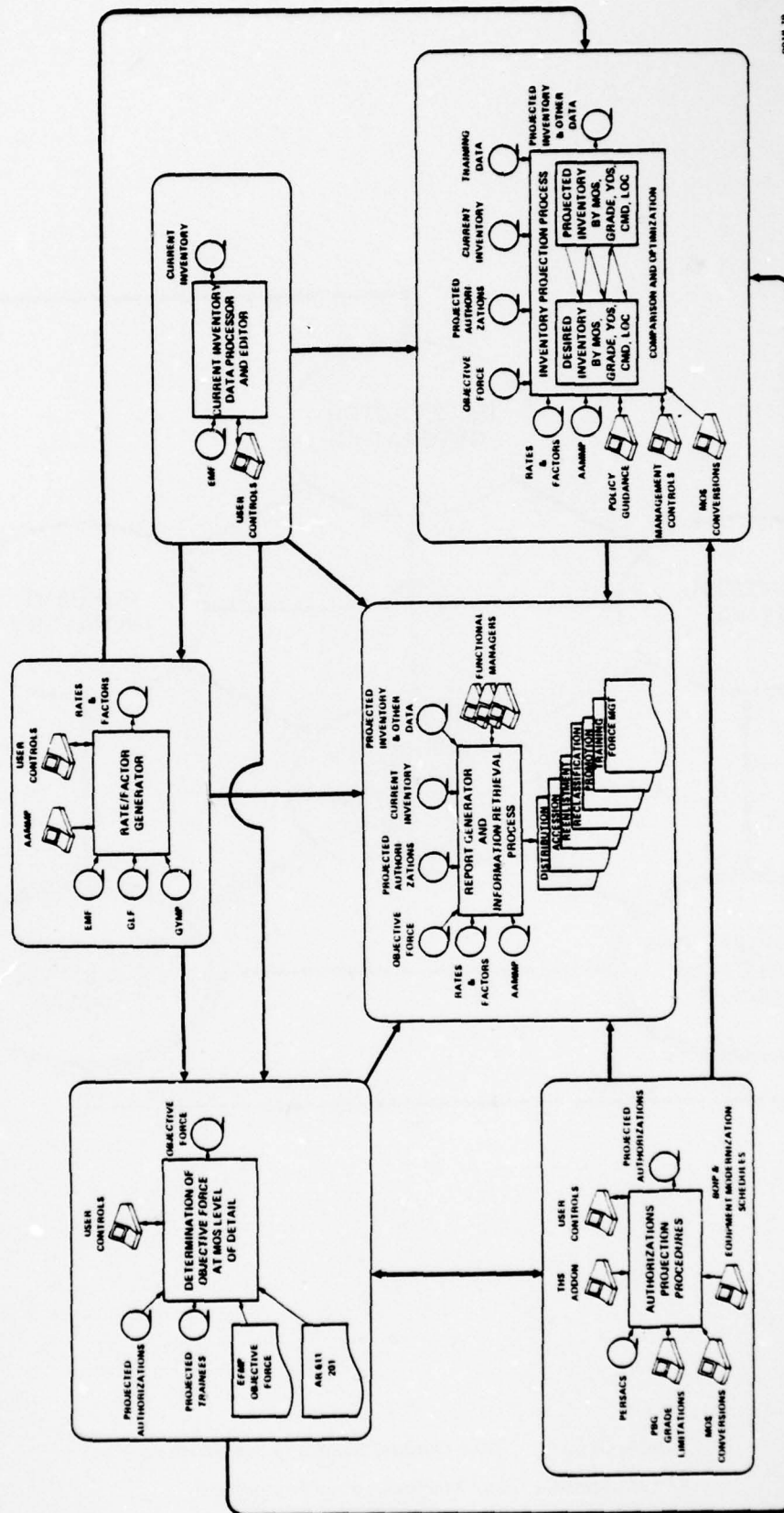


Figure 3.11.1. Interrelationships of EPMD
Requirements for Projected Information



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Figure 3.11.2 Exploded View of Interrelationships

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ANALYSIS AND EVALUATION OF PERSONNEL MODELING REQUIREMENTS TO S--ETC(U)
SEP 79 G N BROWN , P J NEILSEN , P W THOMSON DAA639-78-C-0154
GRC-1072-02-79-CR NL

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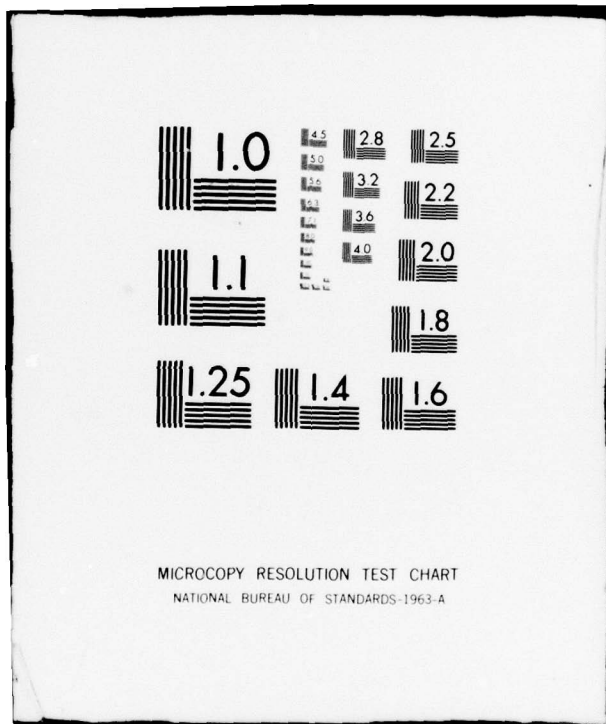


TABLE 3.11.1
FUNCTIONAL INFORMATION INTERRELATIONSHIPS

Procedure* Number	Input	Source	Process	Item	Output	User
I	PERSACS Approved personnel structure Grade limitations MOS conversions THIS (AAMP) User controls BOIP, equipment modernization schedules	ODCSPER ODCSPER ODCSPER ODCSPER Functional mgr. ODCSOPS	Authorization projection procedures	Projected authorizations with THIS add-on, broken out by MOS-5 ASI, LIC sex specification grade unit effective date termination date	Procedure number II, V and VI*	
II	EPMP objective force Projected authorizations AR 611-201 - AR 600-200 Trainee projection User controls MOS/Grade distributions	ODCSPER Proc. No. I* Proc. No. V Functional mgr. EPMS Task Force	Determination of objective force at MOS level of detail	Objective force by MOS-3 grade YOS sex	Procedure number V and VI	
III	ENP User controls	MILPERCEN Functional mgr.	Current Inventory preparation	Current inventory broken out by user-specified level of detail	Procedure number IV, V, VI	
IV	ENP GLF GYMP AAMP User controls	MILPERCEN MILPERCEN MILPERCEN ODCSPER Functional mgr.	Rates & Adjustments determination	User-specified set of rates and factors	Procedure number I, II, V, VI	
V	Objective force Current inventory Rates and factors Constraints Policy guidance Management controls Reenlistments Reclassifications Promotions Training Accessions Force Management Distribution Projected Authorizations Training Data Career progression	Proc. No. II Proc. No. III Proc. No. IV AAMP ODCSPER Functional mgrs at MILPERCEN Proc. No. I ATRS AR 611-201	Inventory projection with breakout by MOS-3, grade, YOS, and sex	Projected inventory Projected reenlistments, reclassifications, promotions, accessions Trainee Projection Requirements/Program for AIT/OSUT	Procedure VI	
VI	Outputs Procedures I - VI*		Reports Generation/ User Inquiry	Hard copy reports Response to User inquiries Impact of "what if" exercises	Functional managers	

* Procedure Number is for the purpose of cross references within this chart only.

3.12 RATES AND ADJUSTMENTS

3.12.1 General

The development of rates and adjustments is a critical and integral part of any forecasting system, one which is inseparably linked with the design and development of the forecasting system(s). As the projection routines are being designed, rates and adjustments required to support the projections will be identified. Conversely, as efforts are made to develop rates, problems with statistical accuracy or reproducibility may make it infeasible to develop a desired rate--a situation which would force a change in the original design of the projection routine to accommodate rates that can be feasibly developed.

GRC's recommendation (in the report of Task 4--Management Issues) and subsequent EPMD guidance to establish single proponency for rates should not be construed as implying that this proponent would generate rates in isolation and dictate the manner in which they are to be used. In fact, the strong interrelationships among Rates and Adjustments and the functional core areas mandate just the opposite--rates and adjustments can only be developed in close coordination with the projection routines and, as shall be discussed later, with the functional managers. It is the usage that will define the required rates; the rates do not define the usage.

3.12.2 Functional Responsibilities

The information in this special area description, then, is not to define specific rates and adjustments to be developed, something that can only be done as the forecasting system(s) is being developed. The information defines the basic functional responsibilities of the Rates and Adjustments proponent. These functional responsibilities, actions which must be accomplished to support the forecasting system(s), are divided into two phases: design and operational. These two phases, and the basic functional responsibilities defined, apply equally to both rates and adjustments. The discussions which follow, therefore, apply to adjustments even though rates are being specifically discussed.

Table 3.12.1 gives examples of types of rates and adjustments that will require development and monitoring for a forecasting system designed to support EPMD requirements. This table is neither specific nor exhaustive; the manner in which the rates and adjustments are to be developed and applied cannot and is not specified; additional rates and adjustments will, presumably, be identified and detailed as the actual system is designed.

3.12.2.1 Design

The design phase refers to those responsibilities incurred during the design and development of projection routines. These responsibilities will be ongoing; they clearly occur during the initial design and development of the initial forecasting system(s). They also occur whenever new projection routines are being developed to modify an already existing system, e.g., to reflect a new policy or to accommodate improved forecasting methodology. Specific responsibilities during this phase include:

- Coordination with system designer(s). The Rates and Adjustments proponent must maintain direct contact with the designer(s) of the new projection routines. Through this contact, required rates and their application can be determined. The coordination of rate development and application is critical and fundamental to accurate forecasting. Consider the example shown in Figure 3.12.1 in which a population (A) at time τ divides to form three distinct populations (B_1 , B_2 , and B_3) at some later time ($\tau+t$). The percentage of the population going to B_1 , is defined by rate α ; to B_2 , by rate β ; to B_3 , the remainder of the original population. A fundamental question arises with the application of rate β : is it applied to population A before or after the effects of rate α are applied? The

TABLE 3.12.1
RATES AND ADJUSTMENTS

AREA	RATES & ADJUSTMENTS	COMMENTS
Authorizations	MOS Conversions Structure	See Note 1
Inventory	Attrition rates	Must be consistent, in aggregate, with rates in ELIM-COM'LIP
	MOS Conversions	Must be consistent with conversions in Authorizations core area
	Functional areas	See Note 2
Training	Course attrition rates	
	Policy	Quantification of current policies
Accessions	Trained/Untrained	Splitting accessions--both prior and no-prior service--into those with or without training in their accession skills
	Policy	Quantification of current policy
Reenlistments	Reenlistment rates	Some indication of the probability of available personnel reenlisting
	Training	An indication of which reenlistees, upon reclassification in conjunction with reenlistment, will require retraining
	Policy	Quantification of current policy
Promotions	Feeder pattern flows	Identification of flow patterns within AR 611-201 feeder patterns
	Other MOS promotions	Rate at which personnel are promoted into secondary or additional MOS
	Demotions	
	Policy	Quantification of current policy

TABLE 3.12.1 (Cont.)
RATES AND ADJUSTMENTS

AREA	RATES & ADJUSTMENTS	COMMENTS
Reclassification tions	Uncontrollable	Identification of uncontrollable, e.g., mandatory, reclassification actions
	Training	Probability of a reclassification requiring retraining
	Reclassification rate	Probability of individuals voluntarily reclassifying
	Policy	Quantification of current policy
Distribution	Policy	Quantification of current policy
Mobilization	Casualty rates	To include, KIA, WIA, and MIA
	Return-to-duty rates	Rates at which wounded and missing personnel return to operating strength
	Overhead loss rates	Rates at which wounded and missing personnel are lost from the Army

Note 1: Rates and adjustments for the Authorizations core area have a differing requirement than other areas: they represent ad hoc requirements to meet specific conditions which, eventually, will be absorbed by the actual authorization system itself. At that point, the rates/adjustments would no longer be required. Because of this unique situation, it is recommended that rates and adjustments for the Authorizations core area be handled by the Authorizations area proponent, not by the Rates and Adjustments proponent.

Note 2: In that the Inventory core area is the point at which the projection of requirements actually takes place, the rates and adjustments required for the individual functional areas are, in fact, required and used by the Inventory core area. For ease of reference and consistency, however, these are listed under the headings of the individual areas.

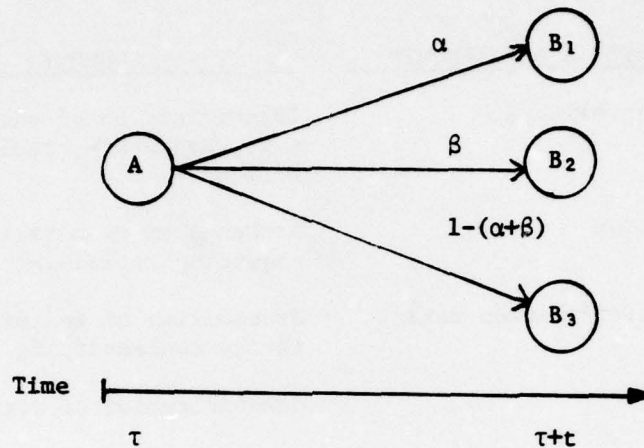


Figure 3.12.1 Simple Rate Application

answer to this question directly affects β . This type of relationship must be coordinated and resolved for every rate or adjustment required by a projection routine.

Additionally, there may be instances in which accurate rates cannot be developed to meet the initial specifications. The proponent should then work with the system designer(s) to determine what variations to the design of the projection routine are needed to allow for the generation of rates.

- Identification of data sources. Sources will have to be identified which will provide the historical data required to develop rates and adjustments. Examples of data sources which can be used to develop rates and adjustments include:

- Gain/Loss File (GLF)--provides information on accessions and losses

- EMF--comparison of two (or more) EMF snapshots identifies changes which occurred between the two
- Army Training Requirements and Resource System (ATRRS)--provides training data, such as course attrition rates
- Year-Group Data Base (GYMP)--provides records of reenlistment, extension, and reclassification actions
- Determination of methodology. The actual methodology used to develop the required rates will be determined by the system designer(s) with the assistance of the Rates and Adjustments proponent. Various techniques--time series analysis, regression, exponential smoothing, interaction detection--are available, each providing different levels of mathematical sophistication with accompanying degrees of accuracy and cost. The Rates and Adjustments proponent will be responsible for providing input to assist in the determination of the most suitable technique for the rate(s) being considered.

3.12.2.2 Operational

The operational phase refers to those responsibilities incurred after the design and development of the projection routines. Specific responsibilities for the operational phase include:

- Monitoring rates. Each time the rate generators produce a new set of rates and adjustments, the proponent should review the summary reports to authenticate the rates being generated. Whenever an exception report is produced identifying specific problems, the proponent must determine the cause of the problem and identify corrective actions.

This responsibility also involves monitoring the results of the projection process and working with the functional area managers and system designer(s) if the projections appear to be erroneous. Close coordination with the system designer(s) will then be required to determine if

the inaccurate projections were a result of rates, projection techniques, or both, and to determine and implement required corrective action.

- Estimating rates. This responsibility is one of the most crucial for the Rates and Adjustments proponent. Variations in Army policies will alter the rates based on strictly historical considerations, without requiring changes in the projection routines themselves. Consider, for example, some type of reenlistment rates which are a function of months to ETS; changing the "window", i.e., months prior to ETS when individuals may reenlist, will not alter the fact that rates are a function of months to ETS, but it will change the numerical values of the rates. The Rates and Adjustments proponent will be responsible for initial estimates of the revised rates. Procedures by which this might be accomplished include:

- Coordination/interviews with functional area proponents in the affected area
- Extrapolations of similar, historical situations
- Questionnaires or surveys to determine anticipated responses

It should be noted that this procedure is for initial estimates only. As revised policies are placed in effect, the actions taken as a result of the policies will appear on the appropriate data bases. Over time, the rate generators will pick up these actions and automatically adjust the rates to reflect any changes.

- Monitor data bases. The proponent should monitor those data bases being used to provide historical data to assure their timeliness and accuracy.

- Act as coordinator. The proponent should act as the focal point for coordinating inquiries pertaining to rates, providing assistance in the use of rates for special applications, and reviewing all rate overrides prior to their use by the projection system.

3.12.3 Mobilization Considerations

Mobilization will not have an impact on the basic functional responsibilities of the Rates and Adjustments proponent, but it will have a major impact on the difficulty of performing these responsibilities.

It can be assumed that mobilization, whatever type, will be accompanied by significant changes in policies. At a minimum, this will require generation of initial rate estimates and may require the development of new rate generators to accommodate new projection routines.

Mobilization will also require generation of casualty rate data. The proponent will have to provide initial estimates, identify data sources for capturing casualty-related actions, and assist in the design and development of rate generators to provide rates as required by the projection routines.

Additionally, rates will probably have to be developed for the new categories of the enlisted population, i.e.:

- Reservists
- National Guard
- Draftees
- Others

Each of the populations that are activated will require a full set of rates and adjustments in order to provide projections for all of the functional areas.

3.12.4 Other Issues

The functional responsibilities described in this section define the role to be filled by the Rates and Adjustments proponent in a future forecasting system(s) designed to support enlisted personnel management. GRC feels that the establishment of a single proponent would also be beneficial with the existing methods and procedures as described in the Report of Tasks 2 and 3. The responsibilities of such a proponent, however, would differ from those in the proposed future system. Responsibilities for a Rates and Adjustments proponent under the existing system(s) would be:

- Coordination. The proponent would act as a "clearing house" through which rates and adjustments prepared by other areas (e.g., ELIM, AID-E, etc.) would pass. The proponent would assure consistency and accuracy among the various rates.
- Distribution. The proponent would be responsible for distributing rates and adjustments data to the individual functional and core areas to support their forecasting processing.
- Generation. As new rates are required, or existing ones are modified and improved, the proponent would gradually assume the responsibility of generating the required rates.

The use of a Rates and Adjustments proponent with the existing methods and procedures provides EPMD with the opportunity to institute "quick fix" improvements at minimal cost and impact. The use of this proponent to consolidate similar rates and to systematize their generation and application will greatly enhance the consistency and accuracy of the projections currently being generated.

3.13 MOBILIZATION CONSIDERATIONS

3.13.1 Background

The GRC study team conducted research on mobilization by review of current and historical literature and conduct of interviews. The purpose of this research was to:

- Identify the spectrum of mobilization policies that affect EPMD functional information requirements
- Identify the impacts of mobilization on EPMD functional information requirements
- Identify the data sources to provide necessary input to forecasting functions under mobilization conditions

Impacts of mobilization on specific EPMD functional and core areas and data sources are discussed within each functional and core area subsection. This section, Mobilization Considerations, presents the general framework for addressing the mobilization issues and the resulting spectrum of policy alternatives.

3.13.2 Method of Approach

Recognizing the need for flexibility to respond to unanticipated conditions and to avoid overly restricting the system to specific, pre-defined policy decisions, GRC has identified mobilization issues which will impact EPMD forecasting, together with a realistic spectrum of policies related to these issues. Fundamental to the identification of policy alternatives is the type of mobilization in effect.

The three types of mobilization considered are partial, full, and total. The characteristics of each are:

- Partial. Mobilization in which forces and individuals beyond the current peacetime Active Army, but less than all Reserve units, serve on active duty.

- Full. Mobilization in which the total 24-division force supporting a European (NATO) scenario is activated, involving the Active Army, eight National Guard Divisions, other National Guard and Reserve units, and the private industrial sector.
- Total. Mobilization in which the entire country is mobilized.

Examining the types of mobilization facilitates the identification of mobilization issues and the resulting spectrums of mobilization policies related to these issues. The types of mobilization provide a starting point for the identification of issues; however, the policy alternatives are applied without specific tie-in to a given type of mobilization. That is, the spectrum of policy alternatives support each type of mobilization.

The GRC study team has assumed that the transition from a peacetime to a mobilization environment and the necessary policy decisions and required legislation (e.g., reinstitution of conscription, use of retirees) for the transition have been made. The spectrum of policy alternatives identified, therefore, applies to the post-mobilization environments rather than the transitional stages of mobilization.

Mobilization policy alternatives are further influenced by:

- Intensity
- Type of conflict
- Anticipated duration

These variables apply to each type of mobilization in effect. Figure 3.13.1 depicts the general relationship among these variables, the type of mobilization, the issues to be considered, and the policy decision process.

The spectrum of policy alternatives is based on the concept that the intensity, duration, and type of conflict associated with each type of mobilization is going to drive the types of policy decisions

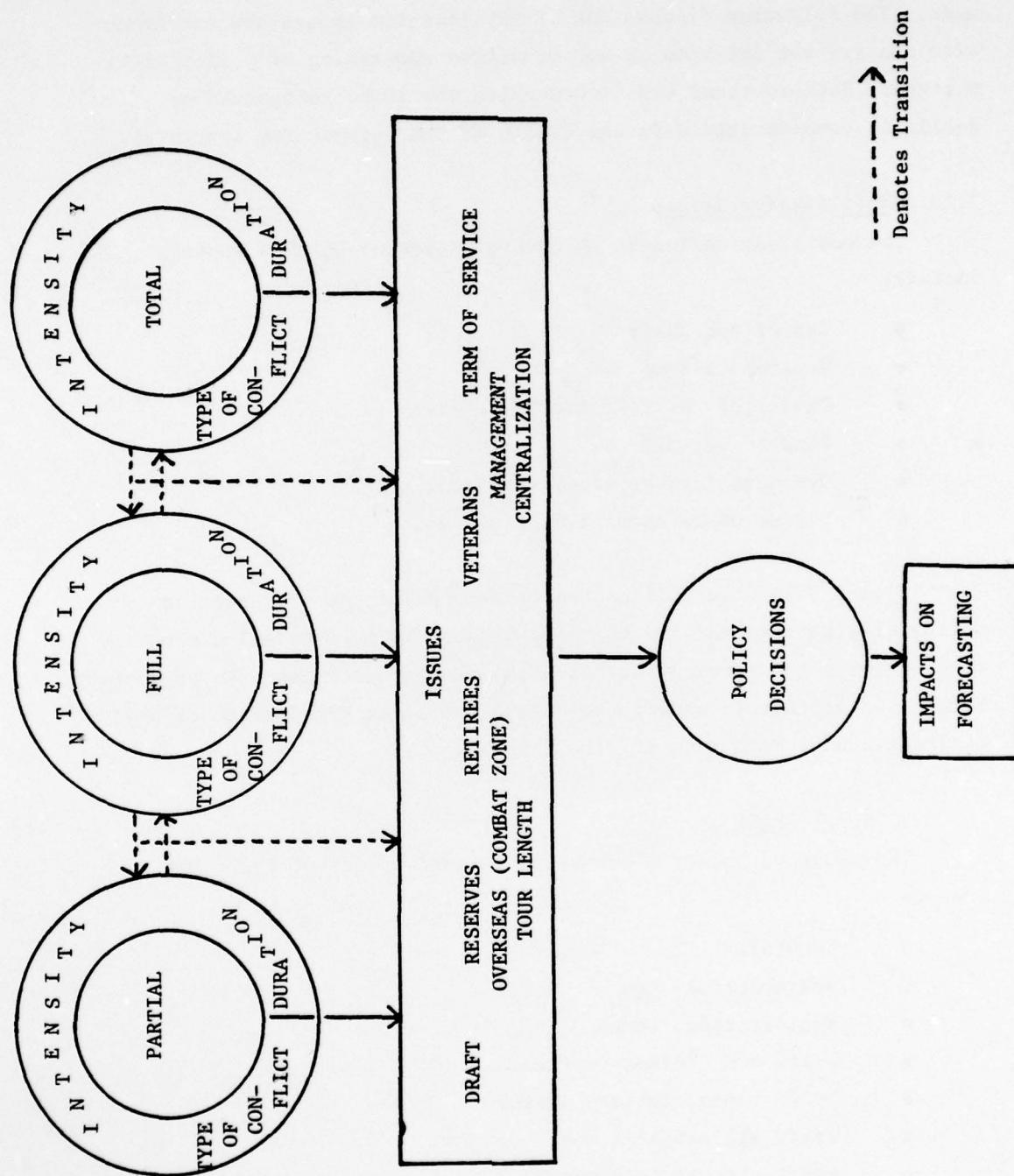


Figure 3.13.1. Mobilization Policy Alternatives and Relationships

made. The following discussions of mobilization issues are not exhaustive and are not intended as the predicted sequencing of policy alternatives. Rather, these are issues which should be recognized as realistic considerations in the design of the forecasting system(s).

3.13.3 Mobilization Issues

The mobilization issues which are presented in this section include:

- Use of the draft
- Reserve call-up
- Recall of retirees and/or veterans
- Term of service
- Overseas (combat zone) tour length
- Degree of management centralization

Figure 3.13.2 identifies the extreme points on the spectrum of policy alternatives related to these issues. A more detailed description of the spectrum of policy alternatives for each issue is presented below. No attempt is made to predefine the exact combination of policy decisions under each type of mobilization.

3.13.3.1 Draft

The range of policy alternatives regarding use of the draft include:

- No draft
- Registration, men
- Registration, women
- Draft men, lottery system
- Draft women, lottery system
- Draft all eligible men
- Draft all eligible women

Additional considerations include drafting for specific MOSs, e.g., combat arms only, drafting only in selected critical skills such as doctors, and drafting in bulk numbers.

<u>Issue</u>	<u>Extreme Points on Spectrums of Policy Alternatives</u>	
Draft	No Draft -----	Draft all eligible men & women
Reserve Call Ready Reserve Standby Reserve Retired Reserve	0% -----	100%
Retirees	0% -----	100%
Veterans	0% -----	100%
Term of Service	Current ----- Contract	Indefinite Contract
Oversea (Combat Zone) Tour Length	Set Tour ----- Length	Indefinite Length plus 6 months
Degree of Management Centralization	Highly ----- Centralized	Highly Decentralized

Figure 3.13.2. Mobilization Policy Alternative Extreme Points

3.13.3.2 Reserve/National Guard Call

The Reserve forces of the Army are comprised of three categories of personnel: Ready Reserve, Standby Reserve, and Retired Reserve. The Ready Reserve is comprised of Selected Reserve (units and individuals) and the Individual Ready Reserve (IRR); the Standby Reserve (SBR) is comprised of individuals on either Active or Inactive status. The Retired Reserve is comprised of individuals who have been transferred from any of these Reserve categories. Table 3.13.1 contains information on the Reserve Forces categories.

The range of policy alternatives applies to all categories of the Reserves and the National Guard. The alternatives include:

- Call no Reserve Forces
- Call selected units
- Call selected individuals
- Call all units
- Call all individuals

3.13.3.3 Retirees

The range of policy alternatives related to retirees includes:

- No retirees called
- Retirees with specific skills called
- All eligible retirees called

3.13.3.4 Veterans

The range of policy alternatives related to veterans includes:

- No veterans called
- Veterans with less than 6 years of service called
- Veterans with selected skills called
- All veterans called

TABLE 3.13.1
CATEGORIES OF RESERVE FORCES

Reserve Forces Category		Training/ Pay Category	Comprised of
R E A D Y R E S E R V E	Selected Reserve (Units and Individuals)	A	Units of the Selected Reserve
			Individual members of the Selected Reserve
		B	Units & Members of Selected Reserve
		C	Units & Members of Selected Reserve
		F	Nonprior service personnel on initial ADT
		M	Units & Members of Selected Reserve
		P	Nonprior service personnel awaiting initial ADT with pay
	Individual Ready Reserve (IRR)	D	Members of Ready Reserve
		E	Members of the Ready Reserve
		H	Members of Ready Reserve
		J	Members of Ready Reserve participating in Officer Training Programs
		K	Members of Armed Forces Health Profession Scholarship Program
		L	Nonprior service personnel awaiting initial ADT without pay
S T A N D B Y R E S E R V E	Active Status	G	Key Federal Officers & employees in Standby Reserve Active Status List
		N	Other members of Standby Reserve Active Status List
D I S T I N G U I S H E D R E S E R V E	Inactive Status	I	Members of Standby Reserve Inactive Status List
	Personnel Transferred From Other Reserve Categories		

3.13.3.5 Term of Service

The policy alternatives, and combinations of alternatives relating to term of service, will be determined based on:

- Type of mobilization
- Intensity, duration, type of conflict
- Pools of personnel serving

Term of service policy alternatives include:

- Complete initial contract (Active Army and Reserves)
- Short-term contract or extension of initial contract
- Long-term contract or extension of initial contract
- Indefinite contract or extension of initial contract

This range of policy alternatives applies to each category of personnel: Active Army, Reserves, Draftees, Retirees, and Veterans. The terms of service--combination of alternatives--may be different for each category. For example, in the event of a mid-intensity, anticipated 12-month partial mobilization, the following alternatives might be selected if all categories of personnel are serving:

<u>Active Army</u>	<u>Selected Reserve</u>	<u>NG</u>	<u>IRR</u>	<u>Active SBR</u>	<u>Draftees</u>	<u>Inactive SBR</u>	<u>Retired Reserve</u>	<u>Retirees</u>	<u>Veterans</u>
Short-term extension of initial contract			Complete initial contract		2 yr. short-term contract		Selected personnel 1 yr. short-term contract		

3.13.3.6 Oversea (Combat Zone) Tour Length

The range of policy alternatives related to OS tour length are driven by:

- Type of mobilization
- Intensity, anticipated duration, and type of conflict
- Pools of personnel serving

The OS tour length policy alternatives include:

- Serve no term at conflict area
- Serve specified time at conflict area and discharge
- Serve specified time at conflict area and remainder of term of service in CONUS and/or nonconflict overseas area
- Serve several tours at conflict area
- Utilization of point system
- Serve indefinite tour at conflict area

As with the term-of-service policy alternatives, all overseas tour length alternatives apply to each category of personnel serving. The alternatives applied to each category, however, may be different for each category. Using the previous example of a mid-intensity, anticipated 12-month partial mobilization, in which all categories of personnel are serving, the following example of overseas tour length may apply:

<u>Active Army</u>	<u>Selected Reserves</u>	<u>NG</u>	<u>IRR</u>	<u>Active SBR</u>	<u>Draftees</u>	<u>Inactive SBR</u>	<u>Retirees</u>	<u>Retired Reserve</u>	<u>Veterans</u>
Serve specified term at conflict area if ETS > 12 months, otherwise serve no term at conflict area			Serve no term at conflict area		Serve specified term at conflict area and discharge	Selected personnel serve specified term in conflict area and discharge		Serve no term at conflict area	

3.13.3.7 Degree of Management Centralization

Under each type of mobilization, there may be varying degrees of management centralization. This issue is highly dependent on the type of mobilization and the categories and numbers of personnel serving. Degrees of management centralization include:

- Management highly centralized
- Selected management areas centralized; selected areas decentralized to unit commander's authority
- Total decentralization

For example, two management areas that might be decentralized in a mobilization environment are reclassifications and promotions.

3.13.4 Summary

The specific policy decisions and combinations of policy decisions which will impact EPMD forecasting will be determined by:

- Type of mobilization
- Intensity, anticipated duration, and type of conflict

Several issues will have to be addressed in a mobilization environment to include the use of the draft, Reserves, retirees, veterans, term of service, OS (combat zone) tour length, and degree of management centralization. Under each issue, there are several policy alternatives which are related not only to the above considerations, but which are highly interrelated with each other.

The spectrums of policy alternatives identified under each issue are not exhaustive. These are realistic policy alternatives which must be considered in the design of the forecasting system.

SECTION 4

ENVIRONMENT

4.1 EQUIPMENT ENVIRONMENT

As explained in Section 1 of this report, specific automated solutions to define and document management problems are beyond the scope and magnitude of this contractual effort. The rationale for this position is both recognized and accepted by the Contracting Officer's Technical Representative (COTR). Provisions of DOD Standard 7935.1-S which require identification of specific ADP hardware needed to support the forecasting of enlisted personnel management functions will not apply for this report. This is not intended to circumvent defining the equipment environment; rather, it is to provide the justification for approaching this discussion in more general terms of equipment availability and configuration instead of a detailed description of hardware requirements. This section, therefore, will delineate the kind of hardware necessary to support an ADP system designed from this functional description and the possible sources for this support.

That an automated system(s) will be needed to support EPMD forecasting requirements seems indisputable; the complexity of the many functions, the intricacy of their interrelationships, and the necessity for data transfer necessitate automation. To support the EPMD requirements, an automated system(s) must have as a minimum:

- A large-scale processor capable of performing sophisticated, numerical operations in a rapid manner
- Large memory capacity plus readily accessible, high-speed peripherals
- Remote terminals with both review and update capability
- Communication facilities capable of transferring data in a rapid, timely, and accurate manner among the EPMD system(s) and other systems (PERSACS, EMF, ATRRS, etc.)

Two organizations currently exist within the Army which have the basic capabilities to support probable EPMD requirements: the Personnel Information Systems Directorate (PERSINSD), MILPERCEN, and the U.S. Army Management Systems Support Agency (USAMSSA), Office of the Vice Chief of Staff, U.S. Army. Appendix H provides information on the type of support available from these two organizations. It seems highly unlikely that any other computer facility exists, or will be created, with the capability to support EPMD. The development of any automated forecasting system(s) must keep the capabilities of these two support facilities in perspective. Failure to do so may result in a system(s) which, although feasible and logical, cannot be implemented for lack of computer support.

Although both organizations provide the basic capabilities, this should not be construed to say that the facilities can provide equal support. The PERSINSD computer is relatively early third-generation equipment limited to 260 kilo-bytes of core; USAMSSA, on the other hand, has very late third-generation machines with up to 6 mega-bytes of core. The USAMSSA system will provide substantially more processing capability than the PERSINSD system. The technical capabilities of the supporting system, therefore, will have significant impact on both the selection of the support site and on the design of the forecasting system(s) itself.

In addition to considerations relating specifically to the technical capabilities, considerations need be given to the use of these capabilities, for example:

- Timeliness of support: what type of turnaround can be guaranteed by the supporting organization?
- Priority of support: will EPMD be able to make out-of-cycle, priority executions of its system(s) when required? With what frequency can the EPMD system(s) expect to be "bumped" by other systems with higher priorities?

- Dedication of support: Will EPMD proponents have on-line, interactive capability? If so, will this be available at all times or only at specified times? When on-line capabilities are not available, what will be provided instead?

These questions are not exhaustive; they are merely illustrative of the type of concerns which have to be raised when developing a system(s) to support EPMD forecasting. The answers to these and other questions will put a twofold burden on the system designer(s):

- Answers must be favorable to fulfilling EPMD's functional information requirements
- Answers must fall within the capabilities of the proposed supporting organization

4.2 SUPPORT SOFTWARE ENVIRONMENT

The exact software required to support EPMD forecasting is not predictable at this time. Software requirements will be defined by such diverse factors as the degree of automation required to meet the specifications of this functional description, the methodology employed by that automation, the specific hardware on which the automated systems will be developed and implemented, and the degree and type of interfaces between this and other systems.

It is quite probable that some of the software requirements can be fully met, or at least adapted from existing capabilities. Examples where this might be true are using an existing data management system to verify and modify data bases (e.g., adjusted authorizations) or using existing packages in the development of rates and factors. When assessing software support capabilities, factors to be considered include:

- Scientific support packages. The availability, capability, and versatility of preprogrammed, scientific packages' needs to be addressed. Of particular interest to the EPMD system(s) would be:

- Statistical routines
- Linear programming systems
- Systems software. The flexibility and convenience of various system software routines, such as:
 - Job control language (and the availability of pre-defined routines for job control)
 - Security and system access techniques
 - Remote terminal control software, for both on-line uses and remote job entry
- Documentation. Copies of documentation, sufficient in both quality and quantity, must be available for any pre-programmed routines, system software and procedures, and basic manuals for the development of new programs.
- Technical Assistance. Technical personnel knowledgeable in the operations of the computer and the support software must be available on an as-required basis.

Despite the availability of such predeveloped software, automation of the EPMD forecasting requirements will require extensive analytical and programming support. It can be expected that this requirement for qualified software support, both programming and analytical, will continue throughout the life of the automated system(s) as changes in Army policy and procedures demand corresponding changes in processing. For initial system(s) development and subsequent system(s) operation and maintenance, a single, concentrated team of analysts and programmers, working in close contact with EPMD functional managers, should be used to develop, operate, and maintain a complete, coordinated, automated system(s).

4.3 INTERFACES

The requirements described in Section 3 of this functional description clearly identify the need for interfaces between EPMD

forecasting functions and various computer systems as well as interfaces between EPMD and other Army organizations.

The methodology by which these interfaces are implemented can vary greatly--from manual activities, e.g., forwarding of printed reports, to fully automated procedures, e.g., direct data transfer from one file to another. Obviously, the various methodologies will have substantial tradeoffs in terms of cost, timeliness, data control, and accuracy; but the selection of a preferred methodology in this report would be premature. The interface methodology which will best meet the EPMD requirements must await the definition of a system(s) to satisfy the forecasting requirements.

As a minimum, any system(s) developed to support EPMD forecasting requirements must address interfaces with:

- PERSACS
- EMF
- ARPRINT
- ATRRS
- REQUEST
- RETAIN
- ELIM-COMPLIP
- GYMP

Interfaces with other systems (e.g., AID-E, OFM, EFM) may also be required, depending on the actual EPMD system developed.

Organizational interfaces are also a major concern; forecasting requirements mandate data flow to and from other organizations. These organizations include higher headquarters (e.g., ODCSPER, ODCSOPS), subordinate major commands (e.g., TRADOC, FORSCOM, etc.), and other MILPERCEN agencies (e.g., Personnel Management Systems Directorate).

A third type of interface, one of extreme importance, is between EPMD forecasting and the MOS-level FORECAST system being developed for

ASA(M&RA), ODCSPER, and MILPERCEN. Although EPMD, ODCSPER, and ASA(M&RA) have unique requirements, they all address the same functional areas; and fundamentally, the forecasting requirements are the same. Since it is assumed that duplicating ADP systems will not be developed, the two sets of requirements will be required to share the same automated support system. The differences between requirements to support EPMD and those required to support ODCSPER--in particular, the greater detail and more urgent data timeliness--will almost certainly require some specialized software, or modules, to interface the data from a common forecasting process to the more demanding EPMD requirements. As with the system and organizational interfaces, however, it is premature to define the exact nature of these interface modules; this definition must await the design of the common forecasting process.

4.4 SECURITY AND PRIVACY

The forecasts generated by the processes defined in Section 3 (System Characteristics) will neither be classified nor be subject to provisions of the Privacy Act. The input data required to generate the forecasts, however, do have security and privacy considerations. The basic authorizations data found in PERSACS are classified confidential; the inventory data on the EMF contain both name and social security information in conjunction with other personal data and are subject to provisions of the Privacy Act.

Any system(s) developed must, therefore, have appropriate safeguards to prevent unauthorized access to these data. Such precautions are particularly important if an on-line, data management capability is developed.

SECTION 5

COST FACTORS

5.1 INTRODUCTION AND OVERVIEW

Detailed and accurate cost factors cannot be developed for this report because only information requirements and not system specifications are presented. However, system specifications for an MOS-Level System (FORECAST) have been completed and can serve as a point of departure for cost estimates since these incorporate many of EPMD's forecasting requirements. Assuming that FORECAST will be used to meet many of EPMD's information requirements, three categories of costs can be discussed:

- Costs for quick-fixes interim to FORECAST development
- Costs of FORECAST development
- Costs of developing additional interface and specialized modules specifically to meet MILPERCEN requirements

5.2 COSTS OF QUICK-FIXES

One of the end uses of this report is to provide a logically determined statement of forecasting requirements such that subsequent analysis can determine areas amenable to quick-fixes. One area, Rates and Adjustments, appears particularly amenable to quick-fixes. A study should determine the organizational structure and data flow for the office responsible for mandating consistent rates and adjustments as per the specifications in this report. Approximately 6 person-months of effort would be required.

Additional areas where quick-fixes can be made should be identified through establishment of management priorities for improving forecasts in particular data areas, review of work schedules for FORECAST development, and study of the information requirements and processing concepts identified in this report. It is estimated that 6-12 person-months of technical effort would be required to identify these additional quick-fix areas and develop plans for development efforts to address them.

5.3 FORECAST COST

5.3.1 FORECAST Responds to EPMD Requirements

System specifications for FORECAST encompass more of MILPERCEN's forecasting requirements than might have been anticipated at the start of this procurement. There are two reasons. First, the developers of the FORECAST specifications took pains to ensure that these specifications were responsive to MILPERCEN requirements. They maintained a close liaison with this project team and were substantially aided by the Report of Tasks 2 and 3 of this study and used inputs being prepared for this report. Second, EPMD's response to the issues raised in the Task 4 Report was that its functional forecasting should be centralized and uniformly consistent throughout the functional areas. This meant that EPMD's forecasting requirements could best be satisfied by an integrated system such as FORECAST rather than an accumulation of separate models. A comparison of this report's EPMD forecasting requirements and the system capabilities proposed in the FORECAST system specifications indicates that an implemented FORECAST would leave only two major categories of unmet EPMD requirements:

- Forecasts of MOS to the ASI, SQI, and LIC level of detail required by the Training functional area
- Forecasts of requirements and area specific populations required by the Distribution functional area

5.3.2 FORECAST Resource Estimates

The FORECAST Resource Requirements Report¹ estimates the resource requirements for FORECAST development. These estimates may be used, with caution, to provide a "ballpark" estimates for development costs for a system responsive to EPMD's forecasting requirements. Resource estimates

¹B. Holz et al., Resource Requirements for the Military Occupational Specialty Enlisted Strength and Personnel Management Forecasting System, General Research Corporation 1075-01-79-CR, June 1979.

such as these can vary significantly due to such factors as development strategies, computer support, contractor costs, and user-oriented features. Resource estimates are consistent with the phased-systems development plan for FORECAST. This phased approach would incorporate, in the first year, a prototype implementation of a subset of the total system capabilities. This would allow for the initial evaluation of critical procedures and the identification and further delineation of user requirements. User aids and other system features could be implemented in the second year of development, followed in subsequent years (i.e., third through fifth year) by the development of the remaining system capabilities. This phased development allows for an initial run capability but does not constrain the system design until major system issues have been resolved.

5.4 INTERFACES WITH FORECAST

As discussed above, there are a few areas where FORECAST in its proposed form would not fully meet EPMD requirements. Interfaces between FORECAST and EPMD must be considered; these would include the output and input devices necessary to communicate with the system as well as specialized modules which might be necessary to fit FORECAST capabilities to specific EPMD requirements. Determination of systems specifications for this area is estimated to require 1 to 2 person-years.

Additionally, two areas are identified that are suitable for development either as a component of FORECAST or as concurrent development efforts closely coordinated with FORECAST. These are Authorizations and Distribution.

The Authorizations area, referred to as the Space Allocation Module in the FORECAST system specifications, requires somewhat different processing techniques, data sources, and management controls than the other parts of FORECAST or EPMD systems. The development of the Authorizations projection system must be closely coordinated with the current efforts to improve PERSACS and the developmental efforts underway to

design FORDIMS and VFDMIS. Additionally, information requirements specified herein and in the FORECAST functional description dictate that development of the authorizations system be closely coordinated with these system developments. Development of the Authorizations projection system is estimated to require significant amounts of computer time and 2 to 10 technical person-years of effort, depending upon how much of the development is included in the PERSACS, FORDIMS, and VFDMIS projects.

The Distribution area appears suitable for development concurrently, and coordinated with, FORECAST development. The approach to this problem considered most appropriate would be the commitment of 6-12 person-months of technical effort to the development of design specifications for the distribution projection system.

5.5 SUMMARY OF COSTS

The following table summarizes the estimated person-years of technical effort discussed above:

<u>Area</u>	<u>Technical Person-Years</u>
Quick-Fix Rates and Adjustments	0.5 -
Identify other quick-fixes	0.5 - 1.0
FORECAST Development	60.0
Specification of Interfaces	1.0 - 2.0
Develop Authorizations area	2.0 - 10.0
Specification of Distribution area	0.5 - 1.0
TOTAL:	64.5 - 75.0

SECTION 6
SYSTEM DEVELOPMENT PLAN

6.1 OVERALL APPROACH

6.1.1 Interrelationships Demand Integrated System

As discussed previously in this report, complex interrelationships exist among the functional, core, and special areas of EPMD forecasting. GRC believes that these interrelationships require integrated processing (for most component areas) as the only approach which will produce satisfactory forecasting results.

EPMD management decisions in response to the GRC Task 4 Report are indicative of acceptance of the need for centralized, integrated forecasting system(s). Accordingly, the system(s) development plan should call for the development of an integrated, centralized core system which deals with most of the component areas, supported by interface modules which deal with those component areas that are separable.

6.1.2 FORECAST

The FORECAST system, proposed for development under the joint proponency of ASA(M&RA), ODCSPER, and MILPERCEN, fills the need for this centralized, core system to deal with the following component areas:

- | | |
|---------------------|--------------------|
| • Inventory | • Force Management |
| • Training | • Accessions |
| • Reenlistments | • Promotions |
| • Reclassifications | |

Currently, the FORECAST system is at the concept development stage. Therefore, the exact limits of what will be included and excluded have not been detailed. The information requirements contained in this report should be used as input to the further

definition and development of FORECAST to assure that those EPMD requirements which can most effectively be met by this central system are included.

Because of the importance of the FORECAST system to EPMD management functions, it is essential that EPMD managers be intimately involved in the detailed development of FORECAST. This involvement should take place at the working level as well as the management level.

6.1.3 Interface Modules

Certain component areas, depending on the exact definition of the FORECAST system, are capable of development separately, concurrent with FORECAST development. These may be referred to as interface modules. The Authorizations core area (which is also included in the FORECAST concept) and the Distribution functional area appear suitable for this treatment. Also, some improvements can be made in the Rates and Adjustments special area concurrent with FORECAST development.

- Authorizations. The Authorizations core area interfaces with other component areas through its output--projected authorizations--serving as input to the other areas. This is a clean, output/input relationship which will allow the separate, concurrent development of the system(s) for projecting authorizations. In the FORECAST System Description this area is referred to as the Space Allocation Module.
- Distribution. The concept proposed for development of the FORECAST system defers to a later time the incorporation of unit-level detail. Pending development of this unit-level dimension of the FORECAST system, an interface module can be developed to forecast the distribution of personnel to the command level (as defined in Section 3.10.). A logical approach to this problem would be the development of a process for projecting total enlisted strength

and authorizations by command which could also be applied to MOS-level data when these become available through FORECAST.

- Rates and Adjustments. Development of the integrated core projection system (FORECAST) must include the determination of the specific rates, factors, and adjustments required for valid data projection, together with processes for deriving these rates. During and subsequent to FORECAST development, EPMD must closely review the methodology of factor generation, monitor the results, and be prepared to intervene in the factor generation process when results are not as desired or when external changes will cause deviation from historical rates. This can be achieved best through use of a central "clearing house" for rates and adjustments as discussed in Task 4 of the GRC effort and Section 3.12 of this report. However, recognizing that it will be at least 3 years before FORECAST is fully operational, interim improvements can be made by using this central rates and adjustments office to improve the consistency and validity of currently used rates.

6.2 GENERAL DEVELOPMENT CONSIDERATIONS

6.2.1 Management Controls

System(s) developed to meet EPMD forecasting requirements must include provisions for management controls which allow the user to vary parameters, input the effects of policy changes, and otherwise intervene when required. These management controls should be structured by functional and core areas and be described in a manner understandable to using personnel. Appropriate points for management controls are included in the component area discussions, Sections 3.2 through 3.10.

6.2.2 Exception Reports

System development should include provision for the automatic generation of exception reports in any area when unexpected deviations occur. The complexities of the system(s) and amounts of detailed data contained in the resulting forecasts are such that functional managers will require automated assistance to digest the results of the forecasting process. This assistance can best take the form of exception reports which are generated when projected deviations exceed management-prescribed thresholds.

6.2.3 Data Base Access

The development plan should also include provision for user access to data contained in the internal system(s) data bases. Provision for ad hoc retrieval of data from system(s) data bases will be useful for analysis and solution of problems not anticipated in system(s) design.

6.2.4 Sensitivity Analyses

Development must provide the capability to forecast the effect of "excursions" or "what if" exercises. In each functional area, occasions will arise when it is necessary to forecast the results of changed policy, changed constraints, or other decisions being considered without disturbing the capability to produce "best estimate" forecasts under existing criteria. This "what if" capability is essential if the forecasts are to have maximum utility for decision-making purposes.

6.2.5 EPMD Involvement in System Development

Experience has shown that the most successful personnel forecasting systems were developed in an atmosphere where the work of the system developers was totally integrated with the work of the using organizations. ELIM-COMPLIP is a good example of this philosophy. In recognition of this condition, system(s) developed to meet EPMD's functional information requirements must involve the directorates'

action officers/analysts. The functional description requirements are too important to be left to the exclusive attention of the system design technician(s). Such functional representation, and a definition of the role to be played, must be incorporated into the development plan.

APPENDIX A
CONTRACT OBJECTIVES

Section

Subject

- | | |
|-----|---|
| A.1 | Scope of contractor effort--extract from contract work specifications. |
| A.2 | Purposes and Uses of EPMD Contract Final Report--
memorandum from GRC to COTR. |
| A.3 | Contract deliverables. |

A.1 SCOPE OF EFFORT

F.1 Project Study Title: Analysis and Evaluation of Personnel Modeling Requirements to Support Enlisted Personnel Management Functions

F.2 Scope of Contractor Effort:

F.2.1 General. The contractor shall perform a detailed study, analysis, and evaluation of the personnel modeling requirements to support the enlisted personnel management functions. The study shall provide the Army with detailed functional definition of the information requirements necessary to support the forecasting functions of the Enlisted Personnel Management Directorate, Military Personnel Center. These functions encompass the alignment of personnel authorizations with budget constraints and their impacts on accessions, training, promotion, reenlistment, reclassification, distribution, and related enlisted personnel management functions. The study shall examine the existing methods used to perform these functions to include data preparation and those systems under development that support these functions. The study shall also address the interface which these forecasting systems must perform.

A.2 PURPOSES AND USES OF FINAL REPORT

24 May 1979

MEMORANDUM FOR: LTC William Green
Automation Management Office
Enlisted Personnel Management Directorate
U.S. Army Military Personnel Center
Alexandria, Virginia 22332

SUBJECT: Purpose and Uses of EPMD Contract Final Report

This memorandum outlines the content and expected use of the EPMD forecasting requirements final report. A subsequent memorandum will discuss the best vehicle for presenting the report, i.e., the form of the Functional Description.

GRC requests that EPMD review the concepts presented in this memorandum and reply to GRC with a memorandum of agreement by 8 June 1979.

REPORT CONTENT

- The report will specify the functional requirements necessary to support enlisted personnel management forecasting functions:

- | | |
|----------------|-------------------------|
| • Accession | • Reclassification |
| • Training | • Promotion |
| • Reenlistment | • Year Group Management |
| | • Distribution* |

- The description of forecasting requirements for each functional area will identify:

- Current needs--GRC will assess the forecasting functions currently performed and determine how these functions can best be integrated with EPMD requirements.
- Unmet needs--those forecasting functions which are either not yet recognized or are recognized but are not currently being performed within EPMD.

* Subsequent analysis of the distribution function may determine that it does not have forecasting requirements of the genre that were intended to or can be addressed by this contract.

MEMORANDUM FOR LTC William Green
6 April 1979
Page Two

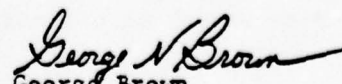
• Forecasting requirements will be delineated by an "input-process-output" sequence which will describe the forecasting inter-relationships among the functional areas.

- Input--a description of those data required to meet the forecasting requirement. If sources for the data exist, they will be identified.
- Process--a description of the type of manipulation to be performed on the input data. This will be a general description; the exact type of algorithm to be employed and the manner of executing that algorithm--manual process, automated system, input from another organization--will not be specified; however, recommendations for deriving algorithms will be provided.
- Output--a description of the product(s) to be generated by a process and its use.

REPORT UTILIZATION

The importance of functionally defining EPMD forecasting requirements cannot be overemphasized. Without such definition, there can be no rational development over time of systems or procedures that are responsive to EPMD's forecasting requirements. It is anticipated that the final report will be used to:

- Permit analysis of EPMD forecasting functions to assess organizational and operational requirements for change.
- Define information flow requirements within and between EPMD and other agencies to best serve enlisted forecasting and planning functions.
- Provide guidance to ASA(M&RA) and ODCSPER to ensure EPMD forecasting requirements are adequately addressed by the FORECAST system.
- Identify areas for further investigation where low-cost, interim fixes could best be applied to enhance existing systems and procedures.
- Permit the design of interface modules to fit FORECAST capabilities to specific EPMD requirements.


George Brown
Project Manager

A.3 CONTRACT DELIVERABLES

- | | | |
|------|--|-----------|
| A001 | <u>Task 1 Study Plan.</u> Prepare a study plan to be submitted for SAG review. The study plan will outline the proposed study process, recommend methodology, personnel resource requirements for their accomplishment, alternatives for consideration, and milestone schedules. | 13 Nov 78 |
| A002 | <u>Task 2 Baseline Definition.</u> Prepare an EPMD Baseline Definition which describes each functional area within the scope of the study. Review and analyze existing operations. Prepare executive summary of current operations to include functional flow charts. | 15 Dec 78 |
| | <u>Task 3 Functional Flow Diagrams.</u> Prepare detailed functional flow diagrams of each functional area. | |
| A003 | <u>Monthly Progress Reports.</u> | Monthly |
| A004 | <u>Task 4 Identification of Management Issues.</u> Identify areas requiring specific management action. | 22 Jan 79 |
| A005 | <u>Subtask 5A.</u> Prepare and submit in draft the following parts of the Functional Description: Section 1 (General), Section 2 (System Summary), and define the format to be used in Section 3; and define the functional areas and their forecasting requirements. | 20 Apr 79 |
| A006 | <u>Subtask 5B.</u> Prepare and submit in draft the first part of Section 3 (Detailed Characteristics), the definition of the functional requirements for individual functional areas. | 17 Aug 79 |

A007	<u>Subtask 5C.</u> Prepare and submit in drafts the remainder of Section 2 (Proposed Methods and Procedures), the remainder of Section 3 (the interrelationships among the functional areas), and all of Section 4 (Environment).	17 Aug 79
A008	Submit draft of entire Functional Description.	17 Aug 79
A009	Prepare final version of Functional Description.	28 Sep 79
A010	Bimonthly SAG status report/briefings.	As Required

APPENDIX B
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APPENDIX C
CONTRACT MEMORANDA

Section

Subject

C.1	Research Plan--Mobilization Impact on EPMD Forecasting Requirements (GRC Memorandum)
C.2	Research Plan--Mobilization Impact on EPMD Forecasting Requirements (EPMD response to GRC memo)
C.3	Evaluation of Task 4 (Preparation of Management Issues)



14 March 1979

C.1 GRC Memorandum

MEMORANDUM FOR: LTC William Green
Automation Management Office
Enlisted Personnel Management Directorate
U.S. Army Military Personnel Center (MILPERCEN)
Alexandria, Virginia 22332

SUBJECT: Research Plan - Mobilization Impact on EPMD
Forecasting Requirements

1. General Research Corporation has expended considerable effort to date in evaluating approaches to dealing with the extremely complex issues of mobilization as they might impact on EPMD forecasting requirements. In general, our research indicates that there simply is no baseline from which functional requirements can be defined. This whole area is one which has received considerable attention but little illumination. Nonetheless, GRC believes that the issue of mobilization must be dealt with as definitively as possible if an effective "system" for accomplishing EPMD forecasting functions is to be defined.

2. GRC research has indicated that two general approaches may be considered in dealing with forecasting and mobilization. The first is the actual forecasting of mobilization requirements, i.e., what types of mobilized resources are required to best meet various scenarios. The second is, given a mobilization environment, what is the impact on the personnel management forecasting requirements within EPMD. GRC believes that analysis of the second approach best supports the objectives of the contract and shall concentrate its efforts accordingly.

3. In pursuing this approach, there are (as a minimum) three major variables or problem areas which must be addressed:

- Identification of the spectrum of mobilization policies.
- Identification of impacts of mobilization on EPMD functional areas.
- Identification of data sources to provide necessary input to forecasting functions under mobilization.

14 March 1979

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4. Perhaps the most serious and difficult of these "areas" is identification of mobilization policies. Obviously, GRC cannot pre-define which policy or policies will be in effect and build these specific policies into a system designed to meet EPMD forecasting requirements. To do so would overly restrict the system to specific alternatives which would be, at best, highly speculative in nature. Rather, GRC feels that the functional requirements definition should be sufficiently broad in scope to accommodate a realistic spectrum of policies or combinations of policies which may be in effect during mobilization. To accomplish this goal, GRC shall accomplish the following actions:

- Review available literature, both current and historical, to identify various mobilization options as currently perceived and previously employed. A major focus will be to identify the mobilization policies which could impact EPMD forecasting functions, i.e., determination and delineation of the set(s) of mobilization policy variables that would require personnel management forecasting functions to be changed, expanded, or developed to permit EPMD to accomplish its mission in a mobilization environment.
- This literature review shall be supplemented by personal interviews with key individuals in organizations such as--but not limited to--MILPERCEN, ODCSPER, the Army Administration Center, and RCPAC to obtain whatever additional personal experience and insight is available.
- GRC shall consolidate these data to identify general areas of policy alternatives and specify the range of options over which the alternatives may vary. For example, one alternative is the draft: it may range from no draft to a universal military obligation of both males and females. Various alternatives in between may include drafting males only, or drafting for specific MOSs, e.g., combat arms, only.

5. The second and related "area" is the identification of the impacts that mobilization in general may have on specific EPMD functional areas. This problem will be difficult because of the lack of formal guidance or historically similar data. The identification of impacts will, therefore, be considerably more subjective in nature and will be developed based on the forecasting requirements of specific functional areas. The types of issues addressed shall include, but not be limited to:

14 March 1979

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- The impact of casualties, to include KIA, MIA, and WIA. Consideration must be given not only to flow into these categories but also flow among and out of these categories.
- Rotational policies defining flow other than casualties out of a combat zone. Examples of types of policies previously employed are termination of conflict (WWII), combat points (Korea), or tour length (Viet Nam).
- Differing impact of trained resource (IRR, SBR, etc.) as opposed to untrained resource (draftees, volunteers).
- Separate identification and tracking of cohorts—RA, AUS, Reserves, National Guard—within a forecasting system to identify different characteristics and policy variables.
- Impact of increased numbers on the system(s).

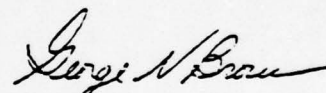
6. The third problem area is the identification of data sources and requirements under mobilization and their impact on current EPMD data sources and on EPMD forecasting functions. Any EPMD forecasting, when functioning in a mobilized environment, will clearly need certain data not required in a peacetime mode of operation. GRC will need to identify what data sources are available, what form the data are in, and whether these data are compatible with EPMD requirements. Specific data sources which need to be identified are:

- Wartime authorizations data. All current EPMD forecasting procedures require authorizations data; forecasting procedures in mobilization will also require authorizations data. GRC will need to identify what data sources are available and what will be needed to interface these data with an EPMD forecasting capability.
- Inventory data. Sources for inventory data for Reserves and National Guard will need to be identified. Any procedures for handling of these data during mobilization (e.g., will activated individuals be placed on the EMF or kept on USAR/ARNG files?) will need to be identified as well. This information is needed to correctly identify the initial inventory and its demographic characteristics for the forecasting functions.

Memorandum for LTC William Green
14 March 1979
Page four

- Rate data, particularly for casualty rates, attrition and other loss rates, and training attrition rates. Any forecasting function will require appropriate rates for aging the inventory. GRC will need to identify what rates are currently being developed and their form, what (if any) historical data are available, and what techniques are available for tracking future data.

Mobilization requirements to be addressed by GRC will be limited to identifying the impacts of mobilization on EPMD forecasting requirements. The three problem areas defined above present those areas in which GRC will concentrate its efforts in defining mobilization capabilities required. The functional description developed with these areas as focal points should provide EPMD with an appreciation for the functional requirements which need to be satisfied to operate in a mobilization mode. It is anticipated, however, given the current mobilization "state of the art," that implementation of any "system" dealing with mobilization will require that the Army make some hard decisions and take aggressive action in a number of areas (e.g., policy matters, data sources, forecasting functions, etc.) to achieve a position of being able to act on and implement functional requirements to be defined by GRC.



George N. Brown
Project Manager

C.2 Response to GRC Memorandum



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
U.S. ARMY MILITARY PERSONNEL CENTER
2461 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22331

DAPC-EPZ-M

23 Apr 79

SUBJECT: Research Plan - Mobilization Impact on EPMD
Forecasting Requirements

General Research Corporation
7655 Old Springhouse Road
McLean, VA 22102

1. The following comments are keyed paragraphs 2 through 6 of GRC's Memorandum dated 14 Mar 79.

a. Paragraph 2. Concur with emphasizing EPMD's forecasting functions, given a mobilization environment. This concept has been approved by CG, MILPERCEN.

b. Paragraph 3. Substitute the following for the first subparagraph, "Collect and become familiar with existing mobilization planning factors, assumptions and policies."


c. Paragraph 4. Agree.

d. Paragraph 5. Concur. However, current planning factors should narrow the scope of this task.

e. Paragraph 6. Agree. A large part of this analysis has already been accomplished and GRC should not duplicate this effort.

2. The majority of information relating to mobilization is classified. Therefore, all GRC employees who have access to any classified material must be properly cleared and documents stored IAW appropriate security regulations.

1 Incl
as


WILLIAM V. GREEN
LTC, GS
Chief, Automation Mgmt Office



C.3 Evaluation of Task 4

DEPARTMENT OF THE ARMY
U.S. ARMY MILITARY PERSONNEL CENTER
2461 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22331

REPLY TO
ATTENTION OF:

DAPC-EPZ-M

26 Mar 79

SUBJECT: Evaluation of TASK 4 {Preparation of Management
Issues}

General Research Corporation
7655 Old Springhouse Road
McLean, VA 22102

Task 4, the Identification of Management Aspects has been reviewed by all members of the Enlisted Forecast Study Advisory Group {SAG} and the following guidance regarding these issues is furnished:

a. Authorization Data

Alternative 2. Although PERSACS is the DA-approved source for authorization, modifications must be made to update the data due to various reasons. The mission of the central point of contact will be to consolidate these modifications and to maintain updated authorizations for short-term projections that reflect the real world needs of the field and assist with the forecasting of long-range requirements which must be constrained to meet budget constraints. Our ultimate objective is to bring the short-range and long-range authorizations in agreement.

b. Inventory Data

Alternative 2. As with the centralized point of contact for authorizations, the proponent of the strength data base will be responsible for consolidating modifications and performing updates to the data base. A single source of inventory data provides EPMD with the consistency necessary to bring our various forecasting functions in line with each other, since every manager would be using the same methodology to develop a specific inventory at a given point in time. One problem that remains unanswered is how this "strength data base" should align or interface itself with the operational EMF.

DAPC-EPZ-M

26 Mar 79

SUBJECT: Evaluation of TASK 4 {Preparation of Management Issues}

c. Objective Forces

Alternative 2. The implementation of the Enlisted Force Management Plan requires the development of a single set of objective forces. This can and must be done in order to achieve consistency among the various programs which shape the enlisted force structure, i.e., promotions, reclassification and reenlistment, monetary incentives and accession and training. It should be derived from PERSACS authorization projections, and within policy and budgetary constraints, adhere as closely as possible to those authorizations.

d. Rates

Alternative 3. A single point of contact for the generation of rates would provide the consistency EPMD is striving for among the forecasting functions. The single point of contact would act as a "clearing house" for rates to ensure that users were knowledgeable of how the rate function are derived and that the application of the rates is consistent among all users. Alternative 3 also allows the proponent to override selected rates which will provide the flexibility desired by some users.

e. Adjustments

As with rates, it is essential that adjustments be applied in a consistent manner so that all users use the same data for a given point in time. Since adjustments apply to both authorization and inventory data, as well as rates, the central points of contact for authorizations and inventory should apply the adjustments for those data. As with rates, allowing the proponent to override selected adjustments would provide the user with some flexibility.

f. Forecasting Techniques

It is considered premature, given the level of functional definition achieved to date, to postulate what forecasting techniques may be appropriate. Forecasting techniques may be an end result of this study.

DAPC-EPZ-M

26 Mar 79

SUBJECT: Evaluation of TASK 4 (Preparation of Management Issues)

g. General

There seems to be some confusion in the area of "authorizations" and "objective forces."

- The distinction between "authorizations" and "objective force" remains unclear. It may be useful to think of "authorizations" as being defined by PERSACS, and subject to modifications only for purposes of converting erroneous or erroneously projected MOS, correcting other known errors, and incorporating information not yet captured in the SACS system. These "authorizations" would not be directly constrained by either budgetary grade limitations or such personnel management considerations as YOS feasibility or promotion rates. This essentially unmodified PERSACS data would be used primarily in its disaggregated state, for example, for distribution.

- Objective forces, on the other hand, could be considered as data, derived from authorizations, which are used to shape the enlisted force. The objective forces, projected to selected future dates, would be used for personnel management subsystems which are concerned with managing at the MOS level of detail but not at geographic or command levels. Necessarily, desired personnel management policies and goals, along with budgetary limitations would be reflected in the objective forces, if the policies and goals were in fact to be honored in day-to-day management actions. A single, agreed-upon set of objective forces is mandatory if the various subsystems are to be consistent with each other.

- Although a single set of objective forces is considered essential for rational enlisted personnel management and force design, it is not absolutely necessary that the command-oriented, disaggregated authorizations data used for day-to-day distribution and for distribution planning be consistent with it. However, inconsistency between authorizations and the objective forces which were used to shape the force will cause imbalances and shortages for some grades. If the same authorizations and the

DAPC-EPZ-M

26 Mar 79

SUBJECT: Evaluation of TASK 4 {Preparation of Management Issues}

corrective modifications discussed in "a" above were to be used for both, then the major difference between authorizations and objective forces would be in grade structure (and, of course, allowances for TTHS).

FOR THE COMMANDER:



WILLIAM V. GREEN

LTC, GS

Chief, Automation Mgmt Office

APPENDIX D
TERMS, ABBREVIATIONS, AND ACRONYMS

There are several terms included in this report that GRC feels need to be amplified. Usage of these terms by EPMD or other Army elements may not parallel the use given them in this report; thus, the requirement to define them in this appendix. The terms are:

- Authorizations. As used in this report, the term "authorizations" is defined as meaning the manpower spaces reflected in approved authorization documents plus the trainee, transients, holdee, and student increments, as adjusted to reflect the following:
 - Force structure changes
 - Changes in TOE/TDA not yet documented
 - Changes resulting from new equipment introductions
 - MOS conversions and structure changes
 - Grade limitations established by budget or program decisions
 - Command strength ceilings when not reflected in authorization documents

The process for establishing these authorizations is described in Section 3.2; this process generally involves starting with PERSACS authorizations and applying known and projected changes and limitations to authorizations at that point in time when they are planned to become effective.

- Objective Force. Objective Force is a set of desirable numerical objectives toward which the Army orients its personnel management policies over a 13-year period, FY 73-FY 85. Theoretically, the objectives are achievable; however, realistically few will be exactly achieved because of changes over time and the necessity and desirability for decentralizing many enlisted management functions. For this reason, the term Objective Force is defined as a steady-state, synthetic, distribution of soldiers by

MOS, grade, and years of service that contains a suitable, feasible, and desirable flow of personnel consistent with personnel management goals.

- Force Management. This term is more encompassing than Objective Force. While the Objective Force provides standards with which to measure progress, Force Management computes the actions necessary to attain the Objective Force. These actions are determined by comparing the Objective Force with a projected inventory. The differences, either over or short by grade and years of service, are the areas requiring management action or Force Management. Force Management is also the process used to assure equal opportunity for women. Management actions are identified to attain this equality.

In summary, the Objective Force is the end goal which management is striving to achieve. Force Management provides the management actions necessary to achieve that goal.

- Command. Command as used herein refers to that level of command within the Army that is used for management-level review of the distribution function. Included in the term "command" is the following breakout of the Army:

Divisions: Each active division, separately identified.

Functional Commands: Department of the Army Staff; joint commands and activities; Army functional commands (USAREC, INTSCOM, etc.)

Overseas Commands: Major overseas commands

Major Commands: Major Army commands not included as functional or overseas commands

CONUS Installations: Each major installation within CONUS

- Rates. Rates are defined to be the ratios, or proportions, used to determine how the enlisted force will react through time. Since they are expressed as ratios, rates are sensitive to the size and makeup of the population against which they are derived and applied. Rates are applied to each of the data sources--authorizations, inventory, and objective force--to determine their behavior through time.
- Adjustments. An adjustment is defined as a fixed increment or decrement to be applied to a specific population. Unlike rates, which are ratios and are sensitive to the size of the population, adjustments are essentially independent of the population size. Adjustments may be used in the definition of input data sources to account for known discrepancies or in forecasting to account for predefined or external factors.
- MOS-3. The enlisted MOS consisting of 3 characters identifies the military occupational specialty without regard to level of skill.

The following abbreviations and acronyms are provided for the reader's information.

AAMMP	Active Army Military Manpower Program
ACT	Automated Control of Trainees
ADP	Automatic Data Processing
ADJ	adjust
ADS	Automated Data System
AFQT	Armed Forces Qualification Test
AID-E	Automatic Interaction Detector-Enlisted
AIT	Advanced Individual Training
ANCO	Advanced Noncommissioned Officer Course
APPR	approved
AR	Army Regulation
ARNG	Army National Guard
ARPRINT	Army Program for Individual Training
AS	Authorization Subsystem
ASA (M&RA)	Assistant Secretary of the Army (Manpower and Reserve Affairs)
ASI	additional skill indicator
ATRRS	Army Training Requirement and Resources System
AUS	Army of the United States (draftees)
AUTH	authorization
BALFOR	Balanced Forces
BCT	basic combat training
BLC	basic leadership course
BNCOC/CA	Basic Noncommissioned Officer Course/Combat Arms

BOIP	Basis of Issue Plan
CAS	civilian-acquired skills
CAP III	Centralized Assignment Procedures
CIR	circular
CLNC	clearance
CMD	command
CMF	Career Management Field
CONUS	continental United States
CONT	continue
COTR	Contracting Officer's Technical Representative
CPU	Central Processing Unit
CURR	current
DA	Department of the Army
DEP	Delayed Entry Program
DES	desired
DLI	Defense Language Institute
DMOS	duty military occupational specialty
DOD	Department of Defense
DP	Data Processing
DPI	Data processing installation
EDATE	effective date
EFM	Enlisted Force Model
EFMP	Enlisted Force Management Plan
ELIM-COMPLIP	Enlisted Loss Inventory Model--Computation of Manpower Programs using Linear Programming
EMF	Enlisted Master File
En	enlisted grade n

EPMD	Enlisted Personnel Management Directorate
EPMS	Enlisted Personnel Management System
ETS	expiration of term of service
ETSDT	expiration of term of service date
EXP	expected
F	female
FAS	Force Accounting System
FORDIMS	Force Development Integrated Management System
FORECAST	Enlisted Strength and Personnel Management Data Forecasting System
FORSCOM	Forces Command
FSS	Force Structure Subsystem
FT	functional training
FY	fiscal year
FYGP	fiscal year group
GLF	Gain, Loss File
GRC	General Research Corporation
GYMP	Year-Group Management Data Base
HAAP	Homebase/Advanced Assignment Program
HQDA	Headquarters, Department of the Army
ID	identity
IRR	Individual Ready Reserve
KIA	killed in action
LIC	language identification code
LP	linear programming
M	male
M Force	Master Force
MACOM	Major Command

MGT	management
MIA	missing in action
MILID	military identity
MILPERCEN	Military Personnel Center
MINES	Monetary Incentive Numerical Evaluation System
MOS	military occupational specialty
MTOE	Modification Table of Organization and Equipment
NATO	North Atlantic Treaty Organization
NCO	noncommissioned officer
NCOES	Noncommissioned Officer Education System
NG	National Guard
NPS	no prior service
OBJ	objective
ODCSOPS	Office of the Deputy Chief of Staff for Operations and Plans
ODCSPER	Office of the Deputy Chief of Staff for Personnel
OFM	Objective Force Model
OJE	on-the-job experience
OJT	on-the-job training
OS	oversea
O/S	over/short
OSD	Office of the Secretary of Defense
OSUT	One Station Unit Training
PBG	Program and Budget Guidance
PDM	Program Decision Memorandum
PERRDIMS	Personnel Development and Distribution Management System
PERSACS	Personnel Structure and Composition System

PERSINSD	Personnel Information Systems Directorate
PIA	Personnel Inventory Analysis
PLC	primary leadership course
PMOS	primary military occupational specialty
PNCOC/CA	Primary Noncommissioned Officer Course/Combat Arms
POC	point of contact
PROG	programmed
PROJ	projected
PS	prior service
PSN	position
QTR	quarter
RA	Regular Army
RCPAC	US Army Reserve Components Personnel and Administration Center
REDST	redistribution
REENL	reenlistment
REQ	required
REQUEST	Recruit Quota System
RETAIN	The Army Reenlistment System
ROMSR	Rounding by the Most Significant Residuals
RQMT	requirement
RSI	Replacement Stream Input
SAG	Study Advisory Group
SBR	Standby Reserve
SGA	Standards of Grade Authorizations
SNCOC	Senior Noncommissioned Officer Course
SQI	special qualifications identifier

SSN	Social Security Number
SSS	Selective Service System
TAADS	The Army Authorization Documents System
TDA	Table of Distribution and Allowances
TDATE	termination date
THS	transients, holdees, and students
TIG	time in grade
TIS	time in service
TND	trained
TNG	training
TOE	Table of Organization and Equipment
TOT	total
TPR	trained personnel requirement
TRADOC	Training and Doctrine Command
TTHS	trainees, transients, holdees, and students
UIC	unit identification code
UNTND	untrained
USAMSSA	United States Army Management System Support Agency
USASMA	US Army Sergeants Major Academy
USAR	US Army Reserves
USAREUR	US Army, Europe
VFDMIS	Vertical Force Development Management Information System
VTAAD	Vertical, The Army Authorizations Documents System
WEEM	Women's Enlisted Expansion Model
WIA	wounded in action
YOS	years of service
YR GP	year group

APPENDIX E
ENLISTED MASTER FILE EDITING

GRC's experience with forecasting systems has indicated that substantial editing of inventory data will be required to assure their validity and acceptability to the projection routines. Specific experience with the Enlisted Master File (EMF) gained through the ELIM-COMPLIP system confirms that data edits will be required before these data can be used by a forecasting system.

Errors in the EMF data can be categorized into two basic types: validity and consistency. Errors of validity are ones in which the code found in a data element is not in a predefined list of legal codes. Examples of this type of error are finding an MOS of "21L" (no such MOS) or an ASI of "88" (first character not alphabetic, no such ASI). Errors of consistency are ones in which the codes with the data elements are themselves legal, but inconsistencies arise when the codes of multiple data elements are compared. Examples of this type of error are an ASI of T7 with an MOS of 45L, or a grade of E9 with a promotion MOS.

The specific edit sequence, i.e., steps to be performed to correct data errors, must be developed jointly by the system designer(s) and the EPMD functional managers. Each edit sequence will vary according to the data element being corrected and the availability of other data upon which the corrections can be based. The types of edit procedures that may be applied include:

- Computation from other data elements. Two or more data elements can be combined through some algorithm to generate the probable, corrected value. An example of this type of edit might be calculating the correct term of service based on the expiration of term of service date (ETSDT) and the date of last accession.

- Computation from user input. Another form of calculation would use a management-provided table of corrected values. This technique would access a table based on other data elements to determine the correct value.
- Direct substitution. Frequently, data elements will be such that their values are normally the same or similar. For these circumstances, a second data element will be substituted directly for the first. An example of this type of edit might use the duty MOS as a direct substitute for an invalid primary MOS.
- Assumption. If a correct value cannot be computed or substituted, a typical value can be assumed and used. This might be as simple as using a single value for all cases, or it might be as complex as randomly selecting a value from a prespecified distribution.
- Deletion. As a last resort, the entire record containing the invalid data can be deleted from the extract. This technique should be employed only when unavoidable and only after analysis has determined that such deletions will not have an adverse affect on the rates, adjustments, and projections that would result from the remaining data.

It should be noted that, whenever editing is required, the secondary data elements used in the editing procedure must be edited. This requirement leads to having a series of edits for the desired data element. If one edit fails due to invalid secondary data elements, other edits will be automatically attempted.

Table E-01 shows an output report from the edit procedures used in the generation of the ELIM-COMPLIP inventory data base. Each of the basic edit techniques described above are used within this procedure. Specific references for examples are:

- Computation from other data elements--report item IX.2.A
- Computation from user input--report item III.2.B(4)
- Direct substitution--report item III.2.B(2)
- Assumption--report item VIII.3
- Deletion--report item V.4

The inclusion of data elements not found in the ELIM-COMPLIP systems--MOS, ASI, etc.--will require edits beyond those found in Table E-01. Whenever common data elements are required, however, the edit sequences used should be the same for both ELIM-COMPLIP and the forecasting system(s) being used by EPMD. Such use of common edits will greatly facilitate the coordination of the total-Army projections provided by ELIM-COMPLIP and the projections to support EPMD functional information requirements.

TABLE E-01

RESULTS OF ELIM PROCESSING OF EMF EXTRACT
AS OF MONTH-END 7004

ITEM	RECORD COUNT
1. TOTAL RECORDS	650638
1. ACTIVE	650638
2. INACTIVE	0
3. WITH INVALID ACTIVE/INACTIVE INDICATOR	0
II. COMPONENT (ACTIVE RECORDS ONLY)	
1. NATIONAL GUARD	952
2. RESERVES	2972
3. DRAFTS -- ARMY OF THE UNITED STATES (AUS)	10
A. TOTAL ACCORDING TO EMF (SERVICE COMPONENT EQUAL TO T)	10
B. HISTORICAL DATA PAGE	0
(1) TOTAL AUS	0
(2) SERVICE COMPONENT EQUAL TO T AND PAYGRADE ABOVE E-5	0
(A) SWITCHED TO FIRST TERM (F-) REGULAR ARMY (RA)	0
- BASED ON LENGTH OF SERVICE	0
- THROUGH DEFAULT	0
(B) SWITCHED TO CAREER RA	0
(1) TOTAL AUS	0
(2) SERVICE COMPONENT EQUAL TO T AND MONTHS OF SERVICE ARBITRARILY SET EQUAL TO 6	10

TABLE E-01 (Cont.)

ITEM	RECORD COUNT
11. 3. C. CONTINUED	
(3) SERVICE COMPONENT EQUAL TO T AND MONTHS TO ETS GREATER THAN 24 (5)	0
(A) SWITCHED TO RA FIRST ENLISTMENT (6)	0
- WITH APPARENTLY NO MORE THAN 34 MONTHS OF SERVICE (7,8)	0
- WITH APPARENTLY MORE THAN 34 MONTHS OF SERVICE (7,8)	0
(H) SWITCHED TO RA SUBSEQUENT ENLISTMENT (9)	0
(4) AUS RECORDS DROPPED BECAUSE IMPOSSIBLE TO COMPUTE MONTHS TO ETS (10)	0
4. REGULAR ARMY	
A. TOTAL ACCORDING TO EMF (SERVICE COMPONENT EQUAL TO R)	646704
B. HISTORICAL DATA BASE TOTAL (1)	646704
(1) FIRST TERM (2)	333508
(A) BASED ON LENGTH OF SERVICE	333330
(R) THROUGH DEFAULT (2)	178
(2) CAREER (3)	313196
C. ELIM INVENTORY	
(1) TOTAL RA (6)	646405
(A) FIRST ENLISTMENT	320864
- NON-CAREER	292817
- CAREER (11)	28047
(B) EXTENDEES	14163
- NON-CAREER	8925
- CAREER	5738
(C) SUBSEQUENT ENLISTMENT	311378

TABLE E-01 (Cont.)

ITEM	RECORD COUNT
II. 4. C. CONTINUED	
- NON-CAREER	23708
- CAREER	287670
(1) NON-CAREER (7)	325450
(*) CAREER (7,12)	320955
- NOT ELIGIBLE FOR NONDISABILITY RETIREMENT (13)	302418
- ELIGIBLE FOR NONDISABILITY RETIREMENT (14)	18537
(F) UNAGED INVENTORY -- I.E., AS OF MONTH-END 7904	
- NON-CAREER	333219
- CAREER	313186
-- NOT-RETIREMENT ELIGIBLE	295341
-- RETIREMENT ELIGIBLE	17845
(2) RA RECORDS DROPPED -- TOTAL FOR ALL CAUSES (15)	299
5. RECORDS DROPPED BECAUSE SERVICE COMPONENT INVALID	0
III. BASIC ACTIVE SERVICE DATE (BASDT) (16)	
1. VALID (17)	646536
2. INVALID	178
A. TYPE OF ERROR	
(1) NOT NUMERIC	178
(2) LATER THAN AS-OF-DATE OF ENR	0
B. EDIT PROCEDURE USED TO CONSTRUCT BASDT (18)	
(1) BASIC PAY ENTRY DATE (BPDY) USED AS SUBSTITUTE	0
(2) DATE OF LAST ACCESSION (ACCT) USED AS SUBSTITUTE (AUS OR RA FIRST ENLISTMENT ONLY)	165

TABLE E-01 (Cont.)

ITEM	RECORD COUNT
III. 2. B. CONTINUED	
(3) COMPUTED ON BASIS OF ETS DATE AND TERM OF SERVICE (AUS OR RA FIRST ENLISTMENT ONLY)	0
(4) COMPUTED ON BASIS OF USER-SPECIFIED TABLE RELATING PAYGRADE AND MONTHS OF SERVICE	13
(5) ALL ATTEMPTS TO COMPUTE PASOT FAIL	0
- AUS -- ARBITRARY VALUE ASSUMED (6 MONTHS PRIOR TO AS-OF-DATE OF EMF)	0
- RA -- RECORD DROPPED	0
IV. DATE OF EXPIRATION OF TERM OF SERVICE (CISDT) (19)	
1. NUMERIC	646394
2. NOT NUMERIC	320
A. COMPUTED ON BASIS OF DATE OF LAST ACCESSION AND TERM OF SERVICE	21
B. UNABLE TO COMPUTE -- RECORD DROPPED	299
(1) BECAUSE TERM OF SERVICE IS NOT VALID CODE (RA ONLY)	299
(2) BECAUSE DATE OF LAST ACCESSION IS NOT NUMERIC OR LATER THAN AS-OF-DATE OF EMF	0
3. MONTHS REMAINING TO ETS AS OF MONTH-END DATE OF EMF	
A. MORE THAN 72 -- SET EQUAL TO 72	53
B. EQUAL TO ZERO -- I.E., ETS DUE	834
C. LESS THAN ZERO -- I.E., ETS PAST DUE	1790
D. LESS THAN -6 -- I.E., MORE THAN 6 MONTHS PAST DUE -- SET EQUAL TO -6	581
V. TERM OF SERVICE (RA FIRST ENLISTMENT ONLY) (20)	
1. COMPUTED ON BASIS OF DATE OF LAST ACCESSION AND ETS DATE	323680

TABLE E-01 (Cont.)

ITEM	RECORD COUNT
2. COMPUTED ON BASIS OF COMPUTED MONTHS TO ETS AND MONTHS SERVED (21)	0
3. COMPUTED ON BASIS OF EMF DATA ELEMENT TERMS OR ETSOT (22)	0
4. RECORD DROPPED BECAUSE UNABLE TO COMPUTE TERM	0
5. COMPUTED TERM DIFFERS FROM EMF DATA ELEMENT TERMS IF EMF SERVICE COMPONENT IS R OR 2 IF EMF SERVICE COMPONENT IS T	808
VI. LENGTH OF SERVICE BASED ON BASOT OR SUBSTITUTE DIFFERENT FROM THAT BASED ON COMPUTED TERM OF SERVICE AND MONTHS TO ETS -- RA FIRST ENLISTMENT ONLY (23)	16506
VII. LOCATION -- BASED ON EMF DATA ELEMENT LOCAR (24)	
1. CONTINENTAL UNITED STATES (CONUS) -- WITH THOSE WITH PAST-DUE DEROS (SEE ITEM IX) (25)	
A. INCLUDED (26)	391876
B. NOT INCLUDED	384100
2. SHORT TERM AREAS -- WITH THOSE WITH PAST-DUE DEROS (SEE ITEM IX) (25)	
A. NOT INCLUDED (26)	27518
B. INCLUDED	29698
3. LONG TERM AREAS -- WITH THOSE WITH PAST-DUE DEROS (SEE ITEM IX) (25)	
A. NOT INCLUDED (26)	227001
B. INCLUDED	232617
4. ASSIGNED TO LONG TERM AREA BY DEFAULT	46965

TABLE E-01 (Cont.)

ITEM ---	RECORD COUNT -----
VIII. TOUR LENGTHS -- AVERAGE AND MAXIMUM	
1. DETERMINED BY EMF DATA ELEMENT ACFT ⁽²⁷⁾	255257
2. DETERMINED BY EMF DATA ELEMENT ASGTC ⁽²⁸⁾	2826
3. ARBITRARILY SET EQUAL TO 24 MONTHS ⁽²⁹⁾	4232
IX. MONTHS TO DATE ELIGIBLE TO RETURN FROM OVERSEAS (DEROS) ⁽⁵⁾	
1. BASED ON EMF DATA ELEMENT DEROS	256083
A. APPARENTLY VALID	253279
H. GREATER THAN MAXIMUM TOUR LENGTH (SEE ITEM VIII) ⁽³⁰⁾	2804
(1) RECOMPUTED BASED ON EMF DATA ELEMENT DCOST, AS-OF-DATE OF THE EMF, AND MAX TOUR LEN	2721
(2) SET EQUAL TO MAXIMUM TOUR LENGTH	83
(A) BECAUSE DCOST IS NOT NUMERIC	83
(H) BECAUSE DCOST IS LATER THAN AS-OF-DATE OF EMF	0
2. DEROS NOT NUMERIC	6222
A. COMPUTATION BASED ON DCOST, AS-OF-DATE OF EMF, AND AVERAGE TOUR LENGTH (SEE ITEM VIII)	2931
H. SET EQUAL TO AVERAGE TOUR LENGTH	3301
(1) BECAUSE DCOST IS NOT NUMERIC	3301
(2) BECAUSE DCOST IS LATER THAN AS-OF-DATE OF EMF	0
3. MORE THAN MONTHS REMAINING TO ETS -- AUS OR FIRST TERM PA ONLY -- SET EQUAL TO MONTHS TO ETS	833
4. MORE THAN 24 -- SHORT TOUR ONLY -- SET EQUAL TO 24	20

TABLE E-01 (Cont.)

ITEM	RECORD COUNT
IX. CONTINUED	
5. EQUAL TO ZERO -- I.E., DEROS DUE (SEE ITEM VII) ⁽⁵⁾	5286
A. SHORT TOUR	1636
B. LONG TOUR	3650
6. LESS THAN ZERO -- I.E., DEROS PAST DUE (SEE ITEM VII) ⁽⁵⁾	2490
A. SHORT TOUR	574
B. LONG TOUR	1966
7. LESS THAN -6 -- I.E., DEROS MORE THAN 6 MONTHS PAST DUE -- SET EQUAL TO -6 ⁽¹⁵⁾	205
X. WHEN (HISTORICAL DATA BASE) ⁽¹⁾	
1. RESERVE COMPONENTS	37
2. REGULAR ARMY ⁽¹²⁾	50556
A. NON-CAREER	35434
B. CAREER	15122

NOTES

1. ATTENDS IS MADE TO ACHIEVE AGREEMENT WITH DATA IN DCSPER-46 REPORT.
2. THOSE WITH LENGTH OF SERVICE GREATER THAN 25 MONTHS AS OF MONTH-END DATE OF EMF ARE CLASSIFIED AS CAREERISTS, OTHERWISE AS NON-CAREERIST. LENGTH OF SERVICE IS BASED ON BASOT, IF VALID AND OTHERWISE, ON REPORT, IF VALID. IF NEITHER IS VALID, RECORD IS CLASSIFIED AS NON-CAREERIST (OR "ETI").
3. EMPLOYED TO ELIMINATE ANOMALIES IN DATA ARRAYS BROKEN OUT BY SUCH VARIABLES AS MONTHS TO ETS AND -- FOR ET RA -- TERM OF SERVICE. AGED WITH RESPECT TO MONTHS TO ETS, LENGTH OF SERVICE AND MONTHS TO DEROS TO REPRESENT STRENGTH AS OF THE MONTH AFTER THE AS-OF-DATE OF THE EMF.
4. BECAUSE BASOT OR ME IS INVALID AND ALL ALTERNATIVE METHODS OF DERIVING A SUBSTITUTE BASOT FAIL SEE ITEM III.
5. AS OF THE MONTH-END DATE OF THE EMF.

TABLE E-01 (Cont.)

NOTES CONTINUED

6. THOSE IN THE FIRST TERM OF ENLISTMENT BUT NOT NECESSARILY CLASSIFIED AS FI RA ON THE BASIS OF THE LENGTH OF SERVICE CRITERION. INCLUDES AUS WHO ENLIST IN THE RA AT THE RECEPTION CENTER.
7. TEST FOR CAREFR/MIN-C IS BASED ON 34 MONTHS OF SERVICE AS OF MONTH-END DATE OF THE EMF.
8. TEST COMPARES MONTHS TO ITS AS OF MONTH-END DATE OF EMF WITH (12 TIMES COMPUTED TERM OF SERVICE MINUS 34) WHERE COMPUTED TERM OF SERVICE IS BASED ON SUM OF MONTHS OF SERVICE AND MONTHS TO ITS.
9. BECAUSE TERM OF SERVICE COMPUTED AS IN NOTE 8 IS GREATER THAN 6 AND MONTHS OF SERVICE IS GREATER THAN 34.
10. SEE ITEM IV.
11. THOSE WITH NO MORE THAN 34 MONTHS OF SERVICE WHO APPEAR TO HAVE EITHER REENLISTED OR EXTENDED THE TERM OF SERVICE. DOES NOT INCLUDE DRAFTSMEES WHO ENLIST IN THE RA AT THE RECEPTION CENTER. SEE NOTE 6.
12. SEE NOTE 13 AND ITEM 11.4.C.(1)(A).
13. CAREERISTS WITH LESS THAN 20 YEARS OF SERVICE. INCLUDES FIRST ENLISTMENT WHO AS OF THE MONTH FOLLOWING THE AS-OF-DATE OF THE EMF HAVE AT LEAST 34 MONTHS OF SERVICE.
14. THOSE WHO AS OF THE MONTH FOLLOWING THE AS-OF-DATE OF THE EMF HAVE AT LEAST 20 YEARS OF SERVICE.
15. SEE ITEMS III, IV, AND V.
16. TEST PERFORMED ON ALL AUS AND RA RECORDS.
17. THAT IS, BASOT IS NUMERIC AND NOT LATER THAN AS-OF-DATE OF THE EMF.
18. LISTED IN ORDER OF PRIORITY OF USE.
19. TEST PERFORMED ON ALL AUS AND RA RECORDS EXCEPT THOSE DROPPED IN CONNECTION WITH BASOT.
20. COMPUTED FOR ALL RA FIRST ENLISTMENT EXCEPT THOSE WHOSE RECORDS ARE DROPPED IN CONNECTION WITH BASOT OR ETSOT AND THOSE INCLUDED IN ITEM 11.3.C.(1).
21. PROCEDURE USED FOR THOSE INCLUDED IN ITEM 11.3.C.(1)(A).
22. PROCEDURE USED IF (1) DATE OF LAST ACCESSION IS NON-NUMERIC OR LATER THAN ETS DATE OR AS-OF-DATE OF THE EMF OR (2) ETSOT EQUALS 9900. TERM IS SET EQUAL TO 2 IF THE EMF DATA ELEMENT, TERMS, EQUALS 1 AND IS SET EQUAL TO 6 IF TERMS EQUALS 2, 0, 7, 8, OR 9 OR IF ETSOT EQUALS 9900.
23. THE LATTER VALUE IS USED.
24. SEE VOLUME II, CHAPTER 2 OF THE SYSTEM DOCUMENTATION FOR THE RELATION BETWEEN LOCAR CODE AND FLTM LOCATION CATEGORY.
25. AS OF THE MONTH FOLLOWING THE AS-OF-DATE OF THE EMF.
26. USED IN ITEM STARTING INVENTORY.

TABLE E-01 (Cont.)

MAXIMUM TOUR LENGTHS. ACFT STANDS FOR APPA OF CURRENT FOREIGN SERVICE TOUR.

29. SEE VOLUME II, CHAPTER 2 OF THE SYSTEM DOCUMENTATION FOR THE RELATION BETWEEN ASGTC CODE AND AVERAGE AND MAXIMUM TOUR LENGTHS. ASGTC STANDS FOR CURRENT ASSIGNMENT CODE.

30. USED IF NEITHER ACFT NOR ASGTC IS NON-BLANK AND A RECOGNIZED CODE.

31. YEAR-MONTH COMMENCED CURRENT OVERSEAS TOUR.

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APPENDIX F
FACTORING AUTHORIZATIONS

CURRENT FACTORING PROCEDURE

In the GRC document, Analysis to Determine Functional and Systems Requirements for an On-Line Structure and Composition System (SACS), Report of Task B, Systems and Procedures Documentation, is an explanation of the current factoring process:

.... When the M Force and TAADS documents have not achieved an aggregate MILID strength balance, the PERSACS factoring process forces a balance. The factoring process in PERSACS is, therefore, an alternate methodology to balance either TAADS or TOE unit aggregate military identity strengths to the selected force unit aggregate military identity strengths. In those imbalance situations, the factoring either increases or decreases the unit personnel detail data by grade, branch, MOS, and quantity until it exactly balances to the selected force aggregate military identity totals. This process is explained in detail in Appendix G.

An excerpt from the above-referenced Appendix G follows:

<u>FAS authorization</u>	<u>TAADS authorization</u>	
Officers (in aggregate)	Officers (in detail)	
Strength Total <u>100</u>	<u>Type</u>	<u>Strength</u>
	low grade	1 20
		2 40
		3 20
	high grade	4 <u>10</u>
		90 strength total
	10% disparity	

Thus, on factoring iteration 1 (FI1) total authorized strengths of the

FAS aggregate	versus	TAADS detail
(100)		(90)

yield an initial computed disparity of 10%, i.e.,

100-90
100

by which TAADS strengths will begin, via the factoring objective process, to be adjusted toward FAS strength specification in accordance with the following schedule:

- The lowest grade with the highest strength (officer type #2 in the above example) will be the subject of the FII factoring adjustment. This strength is factored up or down by the computed disparity percentage to yield the strength value by which the given officer type is to be adjusted. The adjusting strength value, if fractional, is rounded to the nearest integer value.
- The adjusting strength delta (signed integer + or -) computed above is summed into the strength listed for the above grade.
- The impact on strength total effected by the above delta is determined by summing all strengths for grades subject to factoring. If the newly derived strength total is not yet identical to FAS strength, then the next lowest grade with the next highest strength will be factored as per the above factoring procedure.
- Factoring iterations continue until a newly derived strength total across personnel types equates to FAS aggregate strength. This may involve a great number of factoring iterations.

The above example, using TAADS detail officer strength of 90 with a requirement to factor all officer grades to an aggregate FAS strength of 100, is illustrated in Figure G.1. The arithmetic and iterative processing involved to effect a 10% increment in strength is not insignificant.

Thus, as shown in the discussion and Figure G.1, factoring is designed to make larger changes in the lower grades with the higher density MOSs and branches. The reasoning behind this is that such changes will have less impact on the unit's ability to perform its mission. Also, there is less training time associated with low grades and high population MOSs than with high grade, high skill positions. Hence, lower grade authorizations can be more readily restored if this becomes necessary.

Certain restrictions are observed within the factoring process including:

- A recognition that certain key jobs (e.g., aviators, doctors, etc.) should not be eliminated, i.e., factored to zero, even when authorized strength is reduced considerably.
- The exclusion from factoring of the highest officer and enlisted grades, e.g., general officers and sergeant majors.
- A provision within factoring generally avoids the reduction to zero of authorizations for any grade and MOS or grade and branch. The objective is to not factor to zero until all authorization lines for that military ID have been reduced to a value of one.

PROPOSED FACTORING PROCEDURE

The following document, Analysis to Determine Functional and Systems Requirements for an On-Line Structure and Composition System (SACS), Preliminary Draft for Comment, April 1979, presents in the following excerpt a proposal of an improved factoring procedure:

(2) An upgraded factoring process should be considered, if personnel strength factoring is to be continued. The following factoring process is presented for comment. It has the capability to:

- Be more effective on strength reductions since it reduces proportionately by grade and MOS. Hence, grade and MOS distortions introduced by the current factoring process should be eliminated.
- Provide a proportionate grade and MOS spread on strength increases. Like the present factoring process, this concept does not introduce new MOS and grade differences. However, this capability could be developed through a coordinated DAPE-MBA and DAMO-FDA technique, if desired.

(3) The upgraded factoring concept is known as "Rounding by Most Significant Residuals (ROMSR)." It is a computational algorithm that provides unbiased precise adjustment of resource levels in one system to resource levels imposed by another system. It can be applied to adjust increased or decreased resource levels. ROMSR functions as follows:

(a) For illustrative purposes, assume that TAADS (AS) or TOE reflects a MILID strength of 100 spaces while FAS(FSS) reflects a strength of 90 spaces for the same UIC. The total number of spaces output in PERSACS cannot exceed the FAS(FSS) strength. Therefore, a "decrease factor" must be developed:

$$\text{Reduction Factor} = \frac{\text{FAS(FSS) Strength}}{\text{TAADS(AS) or TOE Strength}} = \frac{90}{100} = .9$$

(b) This reduction factor of .9 is used to adjust the TAADS(AS) or TOE detail data as follows:

MOS	TAADS(AS)		Adjusted Strength	Whole Numbers	Residuals
	TOE Strength x	Reduction Factor			
A	11	.9	9.9	9	.9
B	9	.9	8.1	8	.1
C	12	.9	10.8	10	.8
D	15	.9	13.5	13	.5
E	24	.9	21.6	21	.6
F	<u>29</u>	.9	<u>26.1</u>	<u>26</u>	<u>.1</u>
	100		90.0	87	3.0

This process produces the adjusted strengths by MOS and grade with a residual fraction. Since strength quotations (manpower requirements and authorizations are whole numbers only) must exist as whole numbers, the residual fractions must be allocated as follows:

Adjusted Strength	Engineer Rounding Rule	Whole Numbers	Residuals	Residual Allocation ¹	Final Adjusted Strength
9.9	10	9	.9	1 ^a	10
8.1	8	8	.1		8
10.8	11	10	.8	1 ^b	11
13.5	14	13	.5		13
21.6	22	21	.6	1 ^c	22
<u>26.1</u>	<u>26</u>	<u>26</u>	<u>.1</u>	-	<u>26</u>
90.0	91	87	3.0	3	90

This allocation completes the problem and the results are reflected in the "final adjusted strength" column.

ROMSR functions in a reverse manner for increases by developing an increase factor which would always be greater than 1.0.

¹Footnote on page F-9.

¹The residuals total will never exceed 9.9. The "Engineer Rounding Rule" cannot apply because of the arbitrary rule of .5 and greater are rounded to 1. Therefore, the residual allocation rule is to determine and adjust the difference between total adjusted strength including the decimal numbers and the total adjusted strength minus the decimal numbers or the total of the whole numbers. In the above example it is 3. The residual allocation:

- a allocate .1 to .9 to equal 1.0
- b allocate .2 to .8 to equal 1.0
- c allocate .4 to .6 to equal 1.0

APPENDIX G
EPMS MOS/GRADE DISTRIBUTIONS

15 May 1978

MEMORANDUM FOR ENLISTED PERSONNEL MANAGERS

SUBJECT: EPMS MOS/Grade Distributions -- INFORMATION MEMORANDUM

1. Purpose: The attached career management field (CMF) listings are provided as an approximation of MOS/grade structures which should exist under EPMS as result of changes to AR 611-201.

2. Discussion:

a. MOS/grade structures are not in alignment with EPMS for two basic reasons:

(1) EPMS standards of grade authorizations (SGA) in AR 611-201 have not been fully applied to TDA/MTOEs.

(2) Force structure changes have expanded or contracted requirements at various grade levels in some MOS.

b. The attached CMF listings give EPMS MOS/grade structure distributions in terms of decimals factors (for example .1000 = 10%), and reflect EPMS trained personnel requirements (TPR)* for each MOS and grade. Total TPR for each MOS is also given in absolute numbers.

c. TPR Factor: Future MOS authorizations cannot be converted directly to EPMS TPRs. They must first be increased by a TPR factor which adds transients, holders and students (THS). This TPR factor is 1.0658.

d. Simple Conversion of Future MOS Authorizations to EPMS TPRs:

(1) To convert future MOS authorizations into by-grade EPMS TPR distributions, first multiply the total authorizations for the MOS concerned by the TPR factor of 1.0658, and then multiply the result by the decimal factors for the MOS/grade given in the attached CMF listings.

(2) For example, suppose the total authorizations for MOS 11B have grown to 100,000.

DAPC-EPZ-H

15 May 78

SUBJECT: EPMS MOS/Grade Distributions -- INFORMATION MEMORANDUM

First, multiply total authorizations for 11B by the TPR factor to change authorizations to TPR.

$$\begin{array}{r} 100,000 \\ \times 1.0658 \\ \hline 106,580 \end{array}$$

Second, multiply 106,580 by each by-grade decimal factor given in the CMF listing for MOS 11B to change to EPMS TPR distribution:

<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
106,580	106,580	106,580	106,580	106,580	106,580	106,580	106,580
<u>x .3745</u>	<u>x .3399</u>	<u>x .0880</u>	<u>x .0963</u>	<u>x .0580</u>	<u>x .0349</u>	<u>x .0084</u>	<u>x 1.00</u>
39914	36226	9379	10264	6182	3720	895	106,580

e. No decimal factors are provided for CMF 97 (Band) since its SGA was not revised under EPMS.

Elden H. Wright

1 Incl
as

ELDEN H. WRIGHT
COL, GS
Chief, EPMS Task Force

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NOTE:

* TPR is a term used to indicate the strength of an MOS given both authorizations and a proportional share of the budgeted transients, holders and students (THS) account.

CMF 11 (INFANTRY) GROUP I *

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>E</u>
11B	.3745	.3399	.0880	.0963	.0580	.0349	.0084	60
11C ***	.4000	.2551	.2283	.0523	.0643			12
11H ***	.3111	.2755	.2362	.1183	.0589			8
TOTAL	.3718	.3200	.1253	.0918	.0591	.0258	.0062	81

NOTES:

* CMF was implemented under EPMS by Change 4, AR 611-201, Sep 75.

** Trained personnel requirements are updated and projected to 790930.

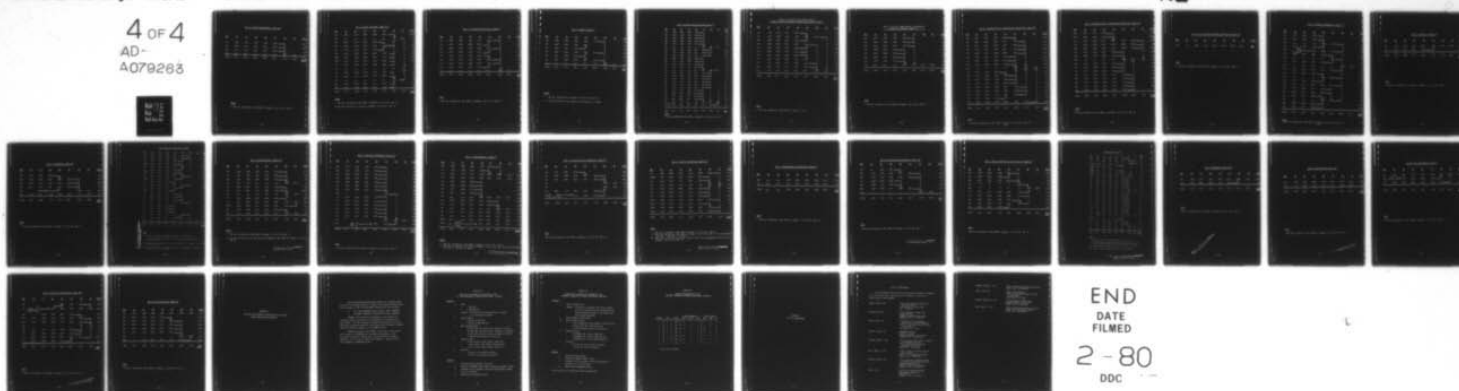
*** MOS were modified or created by Change 9, AR 611-201, Mar 78.

AD-A079 263

GENERAL RESEARCH CORP MCLEAN VA OPERATIONS ANALYSIS GROUP F/G 5/9
ANALYSIS AND EVALUATION OF PERSONNEL MODELING REQUIREMENTS TO S--ETC(U)
SEP 79 G N BROWN , P J NEILSEN , P W THOMSON DAA639-78-C-0154
GRC-1072-02-79-CR NL

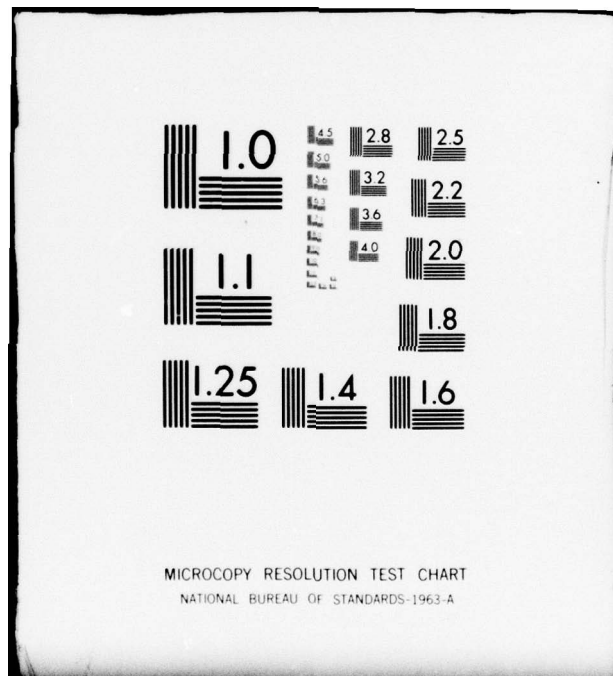
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CMF 12 (COMBAT ENGINEERING) GROUP III*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
12B	.2906	.3536	.1609	.1280	.0668	<div style="border-left: 1px solid black; border-right: 1px solid black; height: 40px; position: relative;"> <div style="position: absolute; top: 0; left: 0; right: 0; border-bottom: 1px solid black;"></div> <div style="position: absolute; bottom: 0; left: 0; right: 0; border-bottom: 1px solid black;"></div> <div style="position: absolute; bottom: 0; left: 50%; transform: translateX(-50%);">↓</div> </div>		14495
12C	.2669	.4517	.1553	.0781	.0480			2061
12E	.1944	.3511	.1896	.1959	.0690			638
12Z							.9076	541
<u>TOTAL</u>	<u>.2755</u>	<u>.3542</u>	<u>.1564</u>	<u>.1208</u>	<u>.0627</u>	<u>.0277</u>	<u>.0028</u>	<u>17735</u>

NOTES:

* CMF was implemented under EPMS by Change 6, AR 611-201, Sep 76.

CMF 13 (FIELD ARTILLERY) GROUP III*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
13B	.4884	.2947	.0929	.0903	.0336	↓		25,90
13Y	—	—	—	—	—	1.00		97.
15B	.5236	.1675	.1256	.1832	↓	↑		19
15D	.2016	.4318	.1224	.1339	.1102	↑		122.
15F	.1700	.4553	.1931	.1816	↑			34
15E	.1963	.4205	.2300	.0857	.0674			169
13E**	.2194	.3162	.2964	.0930	.0751			323
13F**	.3702	.2591	.1699	.1426	.0582			374
15J	.3136	.3792	.1229	.1038	.0805			47
13Z	—	—	—	—	—		1.00	11
17E	.2094	.3836	.1566	.1918	.0587		↑	51
17C	.2046	.3775	.2248	.1124	.0807			34
13W	—	—	—	—	—	1.00		18
82C	.3388	.2434	.2361	.1147	.0670	↑		341
93F	.1463	.3780	.1982	.1524	.1250			32
TOTAL	.3978	.2924	.1378	.0978	.0430	.0285	.0028	<u>4268</u>

NOTES:

* CMF was implemented under EPMS by Change 6, AR 611-201, Sep 76.

** MOS were modified or created by Change 9, AR 611-201, Mar 78.

CMF 16 (AIR DEFENSE ARTILLERY) GROUP I*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
16B	.2839	.4430	.1681	.0617	.0432			4.1
16C	.3473	.2904	.2898	.0725				200
16D	.2989	.3793	.2002	.0636	.0579			2.0
16E	.3559	.3752	.1374	.1315				1.0
16P	.1462	.4414	.2722	.1402				34.5
16R	.2150	.3412	.1658	.1938	.0841			2.0
16H	.0632	.2800	.2800	.2356	.1412			12.0
16J	.1328	.2684	.3192	.2797				35.0
16Z	—	—	—	—	—	.8948	.1052	5.0
<u>TOTAL</u>	<u>.2357</u>	<u>.3697</u>	<u>.2081</u>	<u>.1180</u>	<u>.0401</u>	<u>.0254</u>	<u>.0030</u>	<u>1838.0</u>

NOTE:

* CMF was implemented under EPMS by Change 4, AR 611-201, Mar 76.

CMF 19 (ARMOR) GROUP VI*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOT.</u>
19D	.2962	.2932	.1654	.1335	.1117			923
19G	.2840	.2560	.2206	.2394				407
19H	.3463	.4261	.2276					155
19E	.2863	.2305	.1996	.1990	.0846			1059
19F	.3870	.3898	.2232					306
19J	.2807	.2536	.2190	.1941	.0527			143
19Z	—	—	—	—	—	.8959	.1041	104
TOTAL	.2922	.2714	.1901	.1481	.0645	.0302	.0035	<u>3101</u>

NOTES:

* CMF was implemented by Change 9, AR 611-201, Mar 78.

** Trained personnel requirements are projected to 790930.

CMF 23 (AIR DEFENSE MISSILE MAINTENANCE) GROUP VI*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
22I	.3333	.2833	.2083	.1750	↓			120
22N	.4318	.2330	.2045	.1307				176
23N	.3680	.2480	.1840	.2000				125
23U	.3696	.3696	.1956	.0652				46
25H	.3542	.3229	.2083	.1146				96
23W	—	—	—	—	.7500	.2361	.0139	72
24Q	.1096	.1011	.1685	.3202	.3006	↑		356
24U	.2175	.1838	.1054	.2534	.2399			446
24P	.0918	.2850	.2464	.3043	.0725			207
22X	.2969	.2344	.2188	.2500	↓			64
23Q	.3077	.2308	.2308	.2308				13
23S	.2727	.2273	.2273	.2727				22
23T	.3043	.2174	.2174	.2609				23
23V	—	—	—	—	.3000	.2000	↑	15
24B	.2963	.2222	.1481	.2222	.1111			27
24D	.3143	.2286	.1428	.2286	.0857			35
24F	.2609	.1739	.2174	.2174	.1304			23
24G	.2738	.1498	.1481	.2335	.1948			621
24E	.1595	.1594	.1594	.2270	.2947			414
24C	.2639	.1450	.1450	.2193	.2268			538
24H	.2347	.1837	.2245	.3571				196
24J	.2222	.2639	.1898	.3241				216
24K	.2471	.2965	.2413	.2151				344
24L	.2544	.2862	.2191	.2403				283
24V	—	—	—	—	.7518	.2117	.0365	137
25L/K/J	.1089	.1535	.1436	.3564	.1931	.0445	↑	202
TOTAL	.2243	.1912	.1675	.2354	.1684	.0120	.0012	<u>481*</u>

NOTE:

* CMF was implemented under EPMS by Change 9, AR 611-201, Mar. 78.

CMF 27 (BALLISTIC/LAND COMBAT MISSILE
& LIGHT AIR DEFENSE WEAPON SYSTEMS MAINTENANCE) GROUP V*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
21G	.1783	.1783	.3121	.3312	↓			157
21L	.1796	.2006	.1706	.1796	.2246	.0449	↓	334
46N	.2500	.2946	.2321	.2232	↑			111
27B	.1986	.2559	.2357	.1380	.1717	↓		297
27E	.3605	.4000	.1789	.0605	↑			380
27H	.3640	.3678	.1494	.1188	↓			261
27F	.3565	.3981	.1852	.0602	↓			216
27G	.1857	.2000	.1000	.1071	.4071			140
24M	.1953	.2047	.2047	.1600	.2353	↓		425
24N	.1912	.1912	.1713	.1992	.2470	↓		251
27Z	—	—	—	—	—	.9184	.0816	49
TOTAL	.2445	.2674	.1880	.1442	.1316	.0229	.0015	2621

NOTE:

* CMF was implemented under EPMS by Change 5, Sep 77.

CMF 28 (AVIATION COMMUNICATIONS ELECTRONICS
SYSTEMS MAINTENANCE) GROUP V

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
26D	.3277	.1849	.2269	.2605	↓			11
26E	.3368	.4000	.1368	.1263				9
26K	.3214	.3571	.2143	.1071				28
35K	.3598	.3958	.2444					66
35L	.3919	.3325	.2755		↓			42
35M	.3860	.3567	.2573					34
35R	.3796	.3796	.2407					10
35P	—	—	—	.4583		.4722	.0655	504
TOTAL	.2881	.2789	.1922	.1213	.1042	.0144	.0001	2284

NOTE:

* CMF was implemented under EPMS by Change 8, AR 611-201, Sep 77.

CMF 29 (COMMUNICATIONS - ELECTRONICS MAINTENANCE) GROUP VI*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
32G	.2251	.2430	.3018	.2302	↓			391
32F	.2609	.2326	.2543	.0761	.1761	↓		460
26L	.2441	.2514	.2829	.1207	.1009	↓		1110
26V	.2168	.2391	.2160	.2110	.1171	↓		1213
26Y	.1620	.1667	.2268	.3009	.1435	↓		216
31E	.2754	.3011	.2270	.1964	↓			1242
31J	.3546	.4452	.1568	.0434	↓			1314
32H	.3128	.2694	.2329	.1849	↓			438
32Z	—	—	—	—	.6084	↓	.3305	932
26B	.3004	.4469	.2527	↓	↑	↑	↑	273
26C	.2719	.3386	.1860	.2035	↓	↑	↑	570
36L	.2400	.3000	.3000	.1600	↓	↑	↑	50
35E	.3243	.4010	.1853	.0894	↓	↑	↑	626
35B	.3080	.3420	.1880	.0900	.0720	↓		500
36H	.2538	.2611	.1584	.2208	.1059	↓		1218
31S	.3110	.2924	.1711	.1213	.1042	↓		643
31T	.3757	.3812	.2431	↑				181
35H	.1664	.1822	.2535	.2356	.1366	.0257	↑	505
<u>TOTAL</u>	<u>.2516</u>	<u>.2780</u>	<u>.1957</u>	<u>.1391</u>	<u>.1038</u>	<u>.0270</u>	<u>.0048</u>	<u>11582</u>

Note:

* CMF was implemented under EPMS by Change 9, AR 611-201, Mar 78.

CMF 31 (COMMUNICATIONS - ELECTRONICS OPERATIONS) GROUP VI*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
05B	.3349	.4270	.2381	↓				4187
36K	.3520	.4010	.2470					10848
31V	.1050	.2280	.0521	.4050	.1660	.0439	↓	5760
72G	.2190	.3358	.1861	.1095	.0803	.0693		274
36C	.3239	.3700	.1680	.1070	.0290	.0021		7252
05C	.2951	.3610	.2330	.1109				6240
36E	.3005	.3815	.1908	.1272			↓	173
31Z	—	—	—	—	.5986	.3547		1714
26R	.3111	.4215	.1337	.1337	↑			344
31M	.2911	.4080	.1760	.1249				7051
31N	.2971	.3820	.2069	.1140				754
26Q	.3117	.3310	.1953	.1191	.0429	↑		722
32D	.3035	.3450	.1748	.1018	.0749			1081
36D	.2775	.3290	.1806	.1419	.0710			153
72E	.2879	.3500	.2040	.1182	.0399			8564
72H	.2462	.3538	.2000	.1231	.0769			65
TOTAL	.2826	.3540	.1865	.1106	.0486	.0162	.0014	<u>5518</u>

NOTE:

* CMF was implemented under EPMS by Change 9, AR 611-201, Mar 78.

CME 33 (EW/INTERCEPT SYSTEMS MAINTENANCE) GROUP II*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
33S	—	.3206	.2407	.2407	.1462	.0405	.0112	<u>889</u>

NOTE:

* CME was implemented under EPMS by Change 5, AR 611-201, Mar 76.

CMF 51 (GENERAL ENGINEERING) GROUP VI*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
51G	.3472	.3056	.3472	↓				
82B	.6618	.1884	.1498	↓				
51T	—	—	—	.7237	.2763	↓		
81B	.2152	.6734	.1114	↑				
52E	IAW AR 350-224 } →		.4628	.3636	.1736	↓		
51R	.4056	.4109	.0831	.1004	↓			
51P	—	—	—	—	1.00	↓		
51N	.3411	.4923	.0691	.0975	↑			
51Z	—	—	—	—	—	.8717	.1283	
51M	.4447	.3101	.1178	.0745	.0529	↑		
51B	.4079	.3863	.2056	↓				
51H	—	—	—	.5694	.4306	↓		
51C	.3149	.5768	.1083	↑				
00B	.1817	.1970	.2879	.1970	.1364	↓		
62G	.2373	.4520	.1751	.1356	↓			
62H	.2803	.3427	.2960	.0810	↓			
62J	.2643	.6471	.0886	↓				
62N	—	—	—	.6962	.3038	↓		
62E	.2988	.3880	.3132	↑				
62F	.2237	.4777	.2986	↑				
TOTAL	.2778	.3698	.1720	.1060	.0565	.0156	.0023	<u>14818</u>

NOTE:

* CMF was implemented under EFMS by Change 9, AR 611-201, Mar 78.
G-16

CMF 54 (CHEMICAL) GROUP IV*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
54E	.1238	.0702	.1637	.3694	.1988	.0672	.0068	1026
92D	.4854	.2427	.2330	.0388	↑			103
TOTAL	.1568	.0859	.1701	.3392	.1807	.0611	.0062	<u>1129</u>

NOTE:

* CMF was implemented under EPMS by Change 7, AR 611-201, Mar 77.

CMF 55 (AMMUNITION) GROUP II*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
35F	.2797	.3983	.3220	↓				118
55G	.2326	.2749	.1224	.1828	.1873	↓		662
55B	.3345	.4158	.1180	.0791	.0525	↓		2780
55X	—	—	—	.6637	.3363	↓		226
55Z		55B/D/G }	↑			.9209	.0791	139
55D	.1692	.2667	.1244	.1628	.1526	.1167	.0077	780
<u>TOTAL</u>	.2655	.3386	.1156	.1313	.0988	.0465	.0036	<u>4705</u>

NOTE:

* CMF was implemented under EPMS by Change 5, AR 611-201, Mar 76.

DMF 61 (MECHANICAL MAINTENANCE) GROUP I*

<u>MOS</u>	<u>E1</u>	<u>E2</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
411	.2968	.1943	.3958	.0919	.0212					281
413	.0519	.5310	.2867	.0804	.0500					1580
41Z	.2007	.3963	.3440	.0590						59
633	.3230	.4226	.1867	.0627						1424
63C	.2435	.3459	.1490	.0773	.1336					1129
63F	.1687	.3837	.3758	.0718						3063
52C	.3362	.3646	.1792	.1200						1257
623	.3627	.2660	.2162	.0822	.0729					5037
52Z	.3223	.3831	.2725	.1139						1560
63G	.3223	.4920	.1257							754
63H	.2848	.3350	.1704	.1651	.0467					5129
63J	.4039	.4068	.0615	.1178						1025
64D	.1244	.8308	.0448							201
43B	.2200	.3063	.2165	.2570						562
43L	.2581	.3763	.2172	.1434						465
45K	.2938	.3013	.2306	.1742						1138
45Z							1.00			191
45N	.3123	.3900	.2967							482
45P	.3115	.3885	.3000							160
45R	.3333	.2667	.4000							15
41C	.2935	.2654	.2179	.1652	.0580					569
34C	.1694	.4194	.2419	.1694						124
632								.9592	.0408	832
TOTAL	.3721	.3577	.1923	.0953	.0638	.0174	.0007			51731

NOTES:

- * DMF was implemented under EPMS by Change 4, AR 611-201, Sep 75.
- 1 MOS was transferred from DMF 54 and implemented under EPMS by Change 7, AR 611-201, Nov 77.
- 1 MOS was revised and consolidated with 523 from DMF 51 (deleted) by Change 8, AR 611-201, Mar 78.
- 1 MOS were transferred from DMF 51 (deleted) and implemented under EPMS by Change 9, AR 611-201, Mar 78.

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CME 64 (TRANSPORTATION) GROUP II*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
61B	.2084	.3897	.2058	.1212	.0750	↓		114
61C	.3857	.2314	.1680	.1322	.0826			72
61F	.2344	.5781	.1250	.0469	.0156			64
61Z	—	—	—	—	—	.9600	.0400	2
57H	.3669	.2482	.1247	.1535	.1067	↓		834
64C	.2777	.4326	.1571	.0980	.0346			20460
64Z	—	—	—	—	—	.9009	.0991	32
71N	.2259	.2828	.1202	.1865	.1846	↑		1598
71P	.2772	.2956	.1352	.0872	.1286		.0687	135
93E**	.3085	.3052	.1331	.1266	.1006		.0260	30
93H	.2162	.2908	.1947	.2162	.0822	↓		791
93J	.1949	.2394	.1782	.2160	.1114		.0568	89
TOTAL	.2695	.3900	.1550	.1117	.0559	.0163	.0016	<u>2821</u>

NOTES:

* CME was implemented under EPMS by Change 5, AR 611-201, MAR 76.

** MOS was transferred from CME 00 and implemented under EPMS by Change 9, AR 611-2 MAR 78.

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CMF 67 (AVIATION MAINTENANCE) GROUP IV*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOT</u>
68B	.3977	.3312	.1920	.0790	↓			797
68D	.4892	.3290	.1428	.0390				231
68F	.3085	.3458	.2847	.0610				299
68G	.4408	.2561	.2247	.0784				1148
68H	.5389	.2500	.1833	.0278				180
68J	.3629	.2843	.1593	.1935				496
68M	.4428	.2854	.2310	.0408				883
68K	-	-	-	-	1.00	↓		138
67G	.2305	.3280	.2982	.1433	↓			872
67N	.2439	.3440	.2950	.1171				4678
67U	.4039	.2134	.1500	.2328				1654
67V	.1870	.3594	.3531	.1005				2059
67X	.4055	.1718	.1374	.2852				291
67Y	.2696	.3195	.3329	.0780				1565
67Z	-	-	-	-	.7503	.2409	.0087	1486
67W		ANY CMF MOS } →		.8295	.1705	↑		692
<u>TOTAL</u>	<u>.2651</u>	<u>.2698</u>	<u>.2302</u>	<u>.1352</u>	<u>.0785</u>	<u>.0205</u>	<u>.0001</u>	<u>17465</u>

NOTE:

* CMF was implemented under EPMS by Change 7, AR 611-201, Mar 77.

CMF 71 (ADMINISTRATION) GROUP V*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
03C	.2489	.3065	.1842	.1727	.0878			695
71C	.1660	.3281	.2431	.2628				506
71L	.3120	.2732	.1720	.1044	.0871	.0408	.0103	2251
71M	.2223	.4474	.1644	.0982	.0376	.0195	.0104	1435
75B	.2387	.2254	.5359					4486
75C	.3308	.3866	.2826					2261
75D	.4057	.4228	.1714					3739
75E	.3597	.4540	.1863					1304
75Z	—	—	—	.4220	.4458	.0810	.0511	4381
73C	.1906	.3795	.2438	.1265	.0595			4150
73D	.2179	.3996	.1966	.1026	.0833			468
73Z	—	—	—	—	—	.6683	.3317	202
71D	.0440	.2194	.4780	.1377	.0748	.0307	.0134	1431
71E	—	—	.5413	.3211	.0826	.0367	.0183	109
00U**	—	—	.5559	.3003	.1001	.0391	.0046	869
00J**	—	71L 73C/D 94B		.2751	.5950	.1173	.0126	716
TOTAL	.2509	.2701	.2155	.1189	.1003	.0326	.0117	49270

NOTES:

- * CMF was implemented under EPMS by Change 8, AR 611-201, Sep 77.
- ** MOS were implemented under EPMS by Change 9, AR 611-201, Mar 78 and transferred from CMF 00 (deleted) to CMF 71.

CME 74 (AUTOMATIC DATA PROCESSING) GROUP I*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
74B	.4695	.4898	.0406					886
74D	.1899	.2898	.2104	.1899	.1200			2091
74F	.1202	.1295	.2202	.2701	.2599			1081
74Z						.8719	.1281	203
34Z						.9545	.0455	22
34B	.2936	.2777	.1984	.1746	.0555			126
34E/F J/K/H }	(any MOS)		.1111	.4138	.4751			783
TOTAL	.1888	.2340	.1591	.1993	.1755	.0383	.0050	<u><u>5192</u></u>

NOTE:

*CME was implemented under EPMS by Change 4, AR 611-201, Sep 75.

CMF 76 (SUPPLY AND SERVICE) GROUP II*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
76J	.2844	.2983	.1495	.1113	.1085	.0480		143
76D***	.2701	.5395	.1125	.0378	.0401			14078
76P	.2210	.3155	.1707	.1664	.1263			3737
76Z	—	—	—	—	—	.8162	.1838	121
76V	.3340	.4118	.0894	.1026	.0622			2057
76X	.3796	.2852	.1421	.0700	.1230			945
76Y	.2234	.3234	.1109	.2419	.1003			19304
43E**	.2831	.3447	.1732	.1182	.0674	.0133		1201
43M**	.2904	.4378	.1784	.0768	.0166			48
57E**	.4809	.2546	.1287	.0651	.0636	.0071		707
57F**	.3148	.3241	.1435	.1018	.0972	.0185		216
TOTAL	.2487	.3843	.1171	.1434	.0777	.0239	.0049	<u>45376</u>

NOTES:

- * CMF was implemented under EPMS by Change 5, AR 611-201, Mar 76.
- ** MOS were implemented under EPMS by Change 7, AR 611-201, Mar 77 and transferred from CMF 57 (deleted) to CMF 76.
- *** MOS grade structure was revised under the Tank Force Management Group Study by Change 9, AR 611-201, Mar 78.

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CMF 79 (RECRUITMENT AND RETENTION) GROUP VI*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
00E	—	—	.0973	.4804	.3251	.0823	.0149	6561
79D	—	—	—	.3710	.4148	.1428	.0714	728
TOTAL	—	—	.0873	.4695	.3341	.0884	.0205	<u>7289</u>

NOTE:

* CMF was implemented under EPMS by Change 9, AR 611-201, Mar 78.

CMF 81 (TOPOGRAPHIC ENGINEERING) GROUP IV*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
41B	—	.9123	.0877	↓				5
82D	.2248	.2706	.3624	.0917	.0504	↓		218
81C	.3473	.3031	.1482	.1350	.0664	↓		452
41K	.0000	1.0000	.0000	↓				2
83E	.3868	.4151	.1981	↓				106
83F	.2269	.3996	.1747	.1386	.0602	↓		49
81Z	-	-	-	-	-	.8462	.1538	2
TOTAL	.2605	.3734	.1874	.1086	.0514	.0159	.0029	<u>1387</u>

NOTE:

* CMF was implemented under EPMS by Change 7, AR 611-201, Mar 77.

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CMF 84 (PUBLIC AFFAIRS AND AUDIO VISUAL) GROUP IV*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
26I	.1828	.3333	.1505	.3333				279
41E	.2988	.4023	.2988					87
84F	.1854	.4550	.2753	.0843				178
84I	—	—	—	—	1.0000			56
84Z	—	—	—	—	—	.7018	.2982	114
71Q	.2113	.3511	.1398	.1564	.1414			601
71R	.2092	.2806	.2041	.1888	.1173			196
81E	.1806	.4449	.2687	.1057				227
84B	.3337	.3238	.1619	.1018	.0788			914
84C	.2989	.4022	.2989					184
TOTAL	.2394	.3336	.1781	.1255	.0832	.0282	.0120	<u>2836</u>

NOTE:

*CMF was implemented under EPMS by Change 7, AR 611-201, Mar 77.

DD FORM 11 MEDICAL GROUP 171

<u>MOS</u>	<u>22</u>	<u>24</u>	<u>25</u>	<u>26</u>	<u>27</u>	<u>28</u>	<u>29</u>	<u>TOTAL</u>
422	.2324	.2572	.2044	.1660	.0789			436
912	.3578	.2306	.2081	.1007	.0532	.0446	.0051	1256
91C		.1722	.2843	.2973	.2290	.0229	.0022	629
335		.0429	.2143	.2221				121
35G	.7876	.1949	.0155					193
35T		.0410	.0162	.2423				173
35U					.3824	.1176		85
71G	.0245	.2956	.2125	.0809	.0425	.0022		1360
91D	.2744	.2144	.2386	.2211	.0415			1753
91F	.2229	.2542	.2375	.1021	.0823			480
91G	.2024	.2129	.2580	.1663	.0604			944
91H	.0679	.2715	.2439	.2353	.0814			221
42C		.2500	.2088	.2382	.1029			68
913	.2070	.2261	.2730	.0655	.0555	.0242	.0037	1736
91C	.2656	.2402	.2490	.0913	.0539			241
91L	.2592	.2457	.2716	.0741	.0494			81
91N	.2689	.1763	.2113	.0924	.0504			119
91Q	.2130	.1912	.2381	.0679	.0644			632
91U	.2472	.2130	.2643	.0415	.0318			48
91V		.2365	.2752	.2220	.0532			181
91Y	.2240	.2225	.1643	.0610	.0232			212
91Z	.2907	.2956	.2006	.0563	.0563			1008
91Z		.1569	.2706	.2745	.0960			51
92B	.2571	.2713	.2750	.2096	.0726	.0066	.0023	1222
01H		.2774	.2422	.1804				106
915	.2471	.2205	.2204	.1469	.0651			599
91T	.2552	.2172	.2034	.0207	.0035			290
91R	.2555	.2254	.1564	.1146	.1040	.0226	.0015	1217
42E	.2200	.2900	.2550	.0950	.0650	.0300	.0150	100
TOTAL	.2722	.2393	.2627	.1227	.0811	.0184	.0026	7717

NOTES:

- * MOS was implemented under EPMS by Change 5, AR 611-101, Sep 76.
- ** MOS were created and implemented under EPMS by Change 6, AR 611-101, Sep 76. The authorizations are based on March and Jan 78, projected to 190930.
- *** MOS was transferred from MOS 71 to MOS 91 by Change 8, AR 611-101, Sep 77.
- **** MOS were implemented under EPMS by Change 9, AR 611-101, Mar 78.

CME 92 (PETROLEUM) GROUP III*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
76W	.3330	.3737	.1627	.0623	.0570	.0106	.0001	2649
92C	.0818	.3396	.2830	.1572	.1384			159
TOTAL	.3187	.3718	.1695	.0677	.0616	.0010	.0001	2808

NOTE:

*CME was implemented under EPMS by Change 6, AR 611-201, Sep 76.

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CMF 94 (FOOD SERVICE) GROUP III *

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOT.</u>
94B	.2499	.2599	.2081	.1321	.1307	.0178	.0016	228
94F	.2749	.2530	.1946	.1277	.1119	.0328	.0049	822
<u>TOTAL</u>	<u>.2508</u>	<u>.2596</u>	<u>.2076</u>	<u>.1319</u>	<u>.1300</u>	<u>.0183</u>	<u>.0017</u>	<u>23651</u>

NOTE:

* CMF was implemented under EPMS by Change 6, AR 611-201, Sep 76.

CMF 95 (LOW ENFORCEMENT) GROUP I*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
95B	.3912	.3061	.1539	.0976	.0355	.0121	.0036	22442
95D	1 AW AR 195-3 } →	.1276	.1458	.2938	.4328	↑	↑	439
95C	.3866	.2554	.2343	.0768	.0345	.0124	↑	5075
<hr/>								
TOTAL	.3842	.2941	.1683	.0969	.0416	.0120	.0029	<u>27956</u>

NOTE:

* CMF was implemented under EPMS by Change 4, AR 611-201, Sep 75.

CMF 96 (MILITARY INTELLIGENCE) GROUP III*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
97C				.5964	.3132	.0904		166
97B	LAW AR 614-200 AR 601-210		.2259	.3466	.3287	.0661	.0326	1226
96C		.4303	.2275	.1869	.1552			567
96B		.1237	.1605	.1973	.2127	.1534	.1524	978
96D		.1624	.2220	.2708	.1715	.1264	.0469	554
96Z	-	-	-	-	-		1.00	53
96H	.1944	.3472	.2361	.1388	.0833			72
17L	.1846	.3538	.2308	.1385	.0923			65
17K	.3813	.2813	.1901	.0871	.0407	.0195		2872
17M	.2435	.3652	.2696	.1217				115
TOTAL	.2040	.2132	.2036	.1824	.1338	.0490	.0139	<u><u>6668</u></u>

NOTE:

* CMF was implemented under EPMS by Change 6, AR 611-201, Sep 76.

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CMF 98 (EW/CRYPTOLOGIC) GROUP IV*

<u>MOS</u>	<u>E3</u>	<u>E4</u>	<u>E5</u>	<u>E6</u>	<u>E7</u>	<u>E8</u>	<u>E9</u>	<u>TOTAL</u>
05G	.1586	.2096	.2096	.1926	.1161	.0935	.0198	353
05D	.2145	.3112	.3112	.1631				331
05H	.3626	.2726	.1816	.0911	.0922			1779
05K	.2695	.3353	.2156	.1078	.0718			668
98C	.2406	.2406	.2443	.1592	.1152			1363
98J	.1570	.2134	.2510	.2510	.1276			478
98Z	-	-	-	-	-	.8909	.1090	220
98G	-	.4414	.2201	.1695	.1477	.0213		1740
TOTAL	.1955	.3006	.2135	.1425	.1050	.0384	.0045	<u><u>6932</u></u>

NOTE:

* CMF was implemented under EPMS by Change 7, AR 611-201, Mar 77.

APPENDIX H
EXISTING DATA PROCESSING INSTALLATIONS TO SUPPORT
EPMD FORECASTING REQUIREMENTS

Two data processing installations (DPIs) are currently available with the requisite capacity to support the probable system(s) which would be needed to meet the requirements described in this document:

- U.S. Army Management System Support Agency (USAMSSA)
- Personnel Information Systems Directorate (PERSINSD)

USAMSSA, located within the Pentagon, is the primary data processing facility in support of the Department of the Army staff requirements. This DPI provides an extremely large-sized, late third-generation processing capability, built around two IBM computer systems. Table H-01 provides a summary of the USAMSSA system.

PERSINSD, located at the Hoffman II building, is the primary DPI in support of MILPERCEN data processing requirements. This organization provides a medium-sized, third-generation processing capability, built around 13 UNIVAC 1108 computers. Tables H-02 and H-03 summarize the PERSINSD system.

TABLE H-01

PRINCIPAL DP EQUIPMENT AND SOFTWARE AT THE
U.S. ARMY MANAGEMENT SYSTEMS SUPPORT AGENCY (USAMSSA)

Hardware

- CPUs
 - 1 IBM 3033
 - 1 IBM S370/165

Comment: The CPUs are not interconnected to operate in a multiprocessing mode.
- Central Memory
 - 6 M-byte on IBM 3033
 - 3 M-byte on IBM S370/165
- Mass Storage Devices
 - 96 ITEL 3330, 200 M-byte each, shared by each CPU
 - 12 ITEL 3330, 200 M-byte each, assigned to S370/3033
 - 12 ITEL 3330, 200 M-byte each, assigned to S370/165
 - 1 IBM 2305 fixed head unit (TSO only)
- Magnetic Tapes
 - 24 STC 9-track, single density (6250 bpi)
 - 4 STC 9-track, dual density (800/1600 bpi)
 - 4 STC 7-track, single density (800 bpi)
- Terminals
 - 125 ports for low-speed terminals
 - 75 ports for high-speed terminals

Software

- Operating System--OS/MVT on each CPU
- Compilers--FORTRAN, COBOL, BASIC, Assembly Language, others
- Standard utility programs, scientific/engineering programs, etc. are available.
- MPSX linear programming system

TABLE H-02

PRINCIPAL DP EQUIPMENT AND SOFTWARE AT THE
PERSONNEL INFORMATION SYSTEMS DIRECTORATE (PERSINSD)

Hardware

- CPUs--13 UNIVAC 1108
Comment: The CPUs are configured into seven systems:
six of the systems have dual processors with
multiprocessing capability; the seventh has
only a single processor.
- Central Memory--1820 K-byte*
- Mass Storage Devices*
 - 57 8414 removeable disk spindles, 32 M-byte each
 - 10 8460 fixed disk, 558 M-byte each
 - 15 1782 high-speed drums, 12 M-byte each
- Magnetic Tapes*
 - 59 UNISERVO 16N, 9-track (1600 bpi)
 - 5 UNISERVO 16D, 9-track (800/1600 bpi)
 - 2 UNISERVO 16, 7-track (200/556/800 bpi)
- Terminals
 - 102 ports for direct-connect terminals
 - 9 ports for dial-up terminals

Software

- Operating System--EXEC 8
- Compilers--FORTRAN, COBOL, others
- Standard utility programs, scientific/engineering programs, etc. are available.
- FMPS linear programming system

* See Table H-03 for individual system configurations.

TABLE H-03

SYSTEM CONFIGURATIONS AT THE
PERSONNEL INFORMATION SYSTEMS DIRECTORATE (PERSINSD)

SYSTEM*	CPUs	K-CORE	-----MASS STORAGE-----			---MAG. TAPES---		
			8414	8460	1782	16N	16D	16
1	2	260	8	1	2	7	2	0
2	2	260	8	2	2	9	0	0
3	2	260	6	1	2	10	1	2
5	2	260	7	1	2	9	0	0
6	2	260	14	1	2	9	0	0
7	2	260	8	2	3	7	0	0
8	1	260	6	2	2	8	2	0

* There is no System 4.

APPENDIX I
LIST OF INTERVIEWEES

LIST OF INTERVIEWEES

The individuals listed below were interviewed subsequent to preparation of the Task 2 and 3 report and are in addition to the List of Interviewees in that document.

Amaker, Harold, LTC	Chief, Mobilization Planning and Execution Section Distribution Division, EPMD Tel: 325-8448
Barnheiser, David	Chief, Personnel Systems Team Design Division Combat Development Directorate ADMINCEN Tel: AV 699-2474
Berge, Einar, COL	Chairperson of the Personnel Mobilization Steering Committee Office of the Deputy Chief of Staff for Personnel Department of the Army
Brinson, James, CPT	Management Analyst Analysis Division Combat Development Directorate ADMINCEN Tel: AV 699-2474
Bultman, Roger C., MAJ	Chief, Enlisted Mobilization Training and Management Division Officer and Enlisted Personnel Management Directorate RCPAC Tel: AV 693-7541
Holt, James W., CPT	Project Officer, Training Require- ments Generator Office of the Commanding General RCPAC Tel: AV 693-7382
Manning, Robert, CPT	Project Officer, Wartime Personnel Accounting System (Stubby Pencil) Systems Design Division Combat Development Directorate ADMINCEN Tel: AV 699-2474
Miles, Larry	Director of Personnel Systems Requirements Integration Design Division ADMINCEN Tel: AV 699-2474

Monahan, James F., LTC

Chief, Mobilization Readiness Division
RCPAC Tel: AV 693-7669

Tuten, Jeff, COL

Chief, Plans Division
Office of the Deputy Chief of Staff
for Personnel
Department of the Army

Varnado, Charles C., LTC

Project Manager, SIDPERS USAR
Systems Support Directorate
RCPAC Tel: AV 693-7330

White, Minor K., LTC

Chief, Mobilization Readiness Division
Plans and Preassignments Branch
RCPAC Tel: AV 693-7412